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SPONTANEOUS SEPARATION OF CHOROID SIMULATING CHOROIDAL SARCOMA.

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An eye presenting appearances and history suggesting tumor of the choroid was enucleated, hardened and sectioned. Microscopic examination showed general separation of the choroid from the sclera and the space between filled with a delicate coagulum. There was evidence of low intraocular pressure of unknown etiology.

CASE HISTORY: A.J.B., age 40, of Seattle, occupation machinist, January 25, 1926, consulted Doctor Würdemann, stating he had lost sight of the left eye six months before. It had been pronounced to contain a tumor, by a number of oculists. In January of 1926 it was accompanied by what was supposed to be an intraocular hemorrhage. No other history was obtained except of biliousness; there were no headaches and no pain in the eye. The vision of the right, the better eye, was 6/10; increased to 6/6 by — 1.25 ⌒ — 0.75 cy. ax. 90°. The affected eye had slight light perception downwards.

The physical examination was normal in every respect; the patient being a well developed and apparently healthy man. Urine normal; blood count normal; Wassermann negative. The right pupillary reaction normal; the left only reacted consensually. Tendon reflexes normal. Ophthalmoscopic examination showed what appeared to be a well developed tumor, of a dark color; the anterior convexity of which was focused by + 12. diopter lens; the retinal vessels passing over the apparent growth, and, in every respect, the appearances being those of sarcoma of the choroid in the first stage. Intraocular pressure normal to finger palpation; no signs of inflammation.

Upon these suppositions and the examination, enucleation was offered, accepted, and done January 30, 1926, at the Swedish Hospital. The specimen was put in Kaiserling solution and sent to Major Geo. R. Callender, Curator, Army Medical Museum, Washington, D. C., for examination, section, and report. The material was later sent to Dr. F. H. Verhoeff, whose report follows:

PATHOLOGIC REPORT.

The material submitted for examination consists of two stained sections and celloidin blocks of the eye. Numerous additional sections were made and stained in hematoxylin and eosin.

The globe is normal in size and shape with the exception that the sclera is considerably indented at one place, indicating that the intraocular pressure was subnormal when the eye was placed in the fixing fluid. The choroid is found to be completely separated everywhere except in the vicinity of the optic disc where it remains adherent to the sclera for a distance of 2 mm. from the disc margin all around. Anteriorly the separation extends to the ligamentum pectinatum, thus involving the ciliary body. At the equator the choroid is at a distance of 7 mm. from the sclera. The space beneath the choroid is filled with a delicate coagulum, indicating that it contained dilute serum. In places there are slight collections of blood on the inner surface of the sclera and the outer surface of the choroid. The choroid shows venous congestion but is entirely free from cellular infiltration. The retina is for the most part closely applied to the choroid but in places is separated a microscopic distance from it by serum, and on one side, beginning at the margin of the optic disc, shows a sharply defined cyst

like separation 7½mm. wide and 5½ mm. high. The subretinal space is filled with a serous coagulum much denser than that beneath the choroid. Adherent to the outer surface of the retina here, and within the subretinal space elsewhere, there are many pigmented cells derived from the pigment epithelium. The retina is giving off an insignificant exudate of lymphoid cells into the vitreous and shows venous congestion, but is otherwise normal. The multipolar ganglion cells are present in normal numbers. The vitreous is infiltrated with serum of about the same density as that in the subchoroidal space, and contains an increased number of stellate cells. No blood is found in the vitreous. The optic disc is slightly swollen. The central retinal vessels and their branches are greatly dilated. Neither these nor the retinal vessels are sclerotic. The cornea is normal. The anterior chamber is abnormally deep and contains serum even more dilute than that in the subchoroidal space. The filtration angle is widely open. The canal of Schlemm is widely open and free from blood. The iris is slightly edematous and is lightly adherent to the lens. It is not noticeably congested and is free from cellular infiltration. The pupil is free from membrane. The ciliary body and its processes are greatly congested, but are otherwise normal with the exception that in some sections the anterior

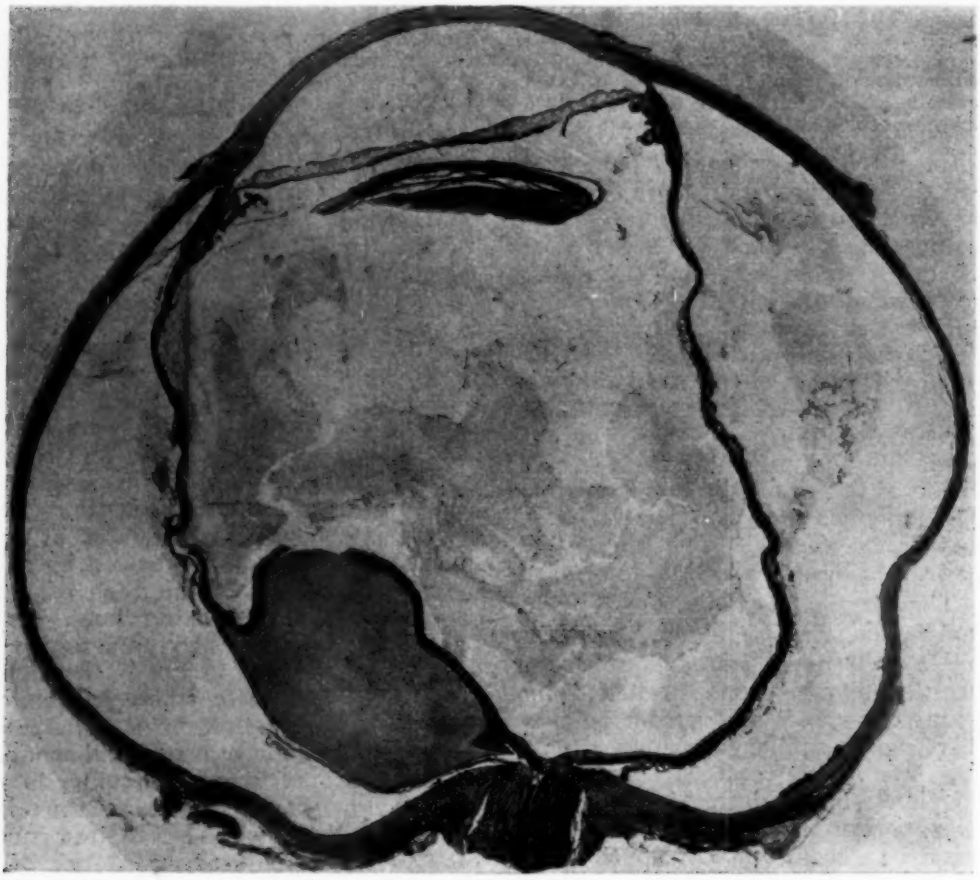

Fig. 1. Spontaneous separation of choroid. Photograph of celloidin section. (Made by Army Medical Museum).

portion of the ciliary body shows an insignificant infiltration with lymphocytes. The lens is normal and *in situ*. no separation of the retina. The marked venous dilatation of all the intraocular vessels with the possible ex-

Fig. 2. Serous coagulum in subretinal space. (Section and photograph made by Army Medical Museum).

COMMENT BY DR VERHOEFF: The pathologic findings in this case are essentially the same as those in the case reported by Verhoeff and Waite,* except that in the latter case there was ception of those of the iris, the slight papilledema, the deep anterior chamber, and the indentation of the globe, go to show that the separation of the choroid in the present case, also, was due to low intraocular pressure. The clinical history, however, throws no light on the cause of this low pressure.

*Verhoeff and Waite. Separation of the Choroid. Trans. Amer. Ophth. Soc., 1925, p. 120.

BILATERAL LYMPHOBLASTOMA OF ORBIT WITH LEUCEMIA SHOWING CELL INCLUSIONS.

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A boy of thirteen had a mass in the orbit pushing the eyeball forward and downward. He was anemic and emaciated. The tumor was removed, and later the eye on account of panophthalmitis. Death in about two months. Reported from Government Ophthalmic Hospital, Madras.

A.R., Hindu, male, age 13, presented himself at the hospital on 4-7-1926 with proptosis of the left eye. He was found to have a hard tumor mass lying between the globe and the orbital roof which pushed the eyeball forwards and downwards. The cornea was exposed and ulcerated; the palpable portion of the tumor felt about the size of a date and was disposed horizontally, more prominent in the middle than laterally. On the opposite side a tiny hard mass was located in the middle line between the globe and the roof of the orbit and about a quarter of an inch back from the orbital rim. There were no glandular enlargements about the head and neck or elsewhere; the liver and spleen were of normal size.

The boy was markedly anemic and wasted. Examination of the blood showed 54,000 white cells per cubic millimeter, and a relative count of 47% large mononuclears (monocytes and transitional cells), lymphocytes 44%, polymorphs 8%, eosinos, 1%. It was decided in view of the probable loss of the eye from corneal ulceration to remove the growth. This was carried out, but the patient developed a panophthalmitis and the eye had to be removed.

When the patient was first admitted the temperature continued above normal ranging between 99° and 100°. At the time of the first operation the temperature went up to 101° and steadily rose to 103°, till after the second operation when it settled down and in a week touched normal. Immediately another rise started and the fever continued steadily mounting with slight morning remissions of a degree or two, until in the eighth week the evening temperature registered over 104°. This was just before the patient was removed from the hospital. The boy was then in a dying condition.

The case resembled in its main features four others of leucemia associated with bilateral enlargement of the lacrimal gland seen in this clinic during the last few years and described in my annual hospital reports. They varied considerably, however, in the nature of the blood picture; the present case showing a mononuclear preponderance; the others resembling splenomedullary leucemia. An interesting feature had been observed in a previous case which was not published as I did not consider it of sufficient importance without further confirmation. I refer to the presence in many of the white cells of rod shaped bodies staining red with Leishman's stain. In certain blood slides of the case under report large numbers of the monocytes showed these rod shaped bodies, some of which were long (2.5μ), others much shorter. Morphologically they might have been taken for large bacilli, but did not give me this impression. Evidently the number varied at different times. On one occasion practically all the monocytes showed such bodies, a week later not more than 30% contained them. They were not observed in any other type of cell, nor found free in the field.

I drew the attention of Major King, Director of the King Institute, Guindy, to the cell inclusions; and he agreed with me that there was no doubt as to their presence and that blood collected by one of his assistants Mr. Theodore and stained in his laboratory showed them, so that they were not artifacts of my laboratory (See microphotograph). Major King started an investigation of the blood, and a series of cultures was made both in the cold

and at body temperatures with negative results. Unfortunately there was no opportunity to continue the work beyond this point as the patient left the hospital. An interesting feature was the development of a large superficial ulcer on the under surface of the tongue. This appeared about ten days before the patient departed. The growth on the right side had continued to enlarge and a tarsorrhaphy had to be done to save the cornea.

The boy got steadily worse during his stay in the hospital and was removed by his parents on 24-8-26. It is presumed that the child died eventually as did the previous cases presenting the syndrome of leucemia with bilateral enlargement of the lacrimal glands. It is regrettable that more extensive observations could not be proceeded with and further information obtained as to the nature of these cell inclusions. This note may, however, be of interest to those who have to deal with similar cases. Since writing the above Majors Acton and Knowles of the Tropical School of Medicine and Hygiene, Calcutta, have examined my slides and expressed the opinion that the rods are perhaps Charcot-Leyden crystals.

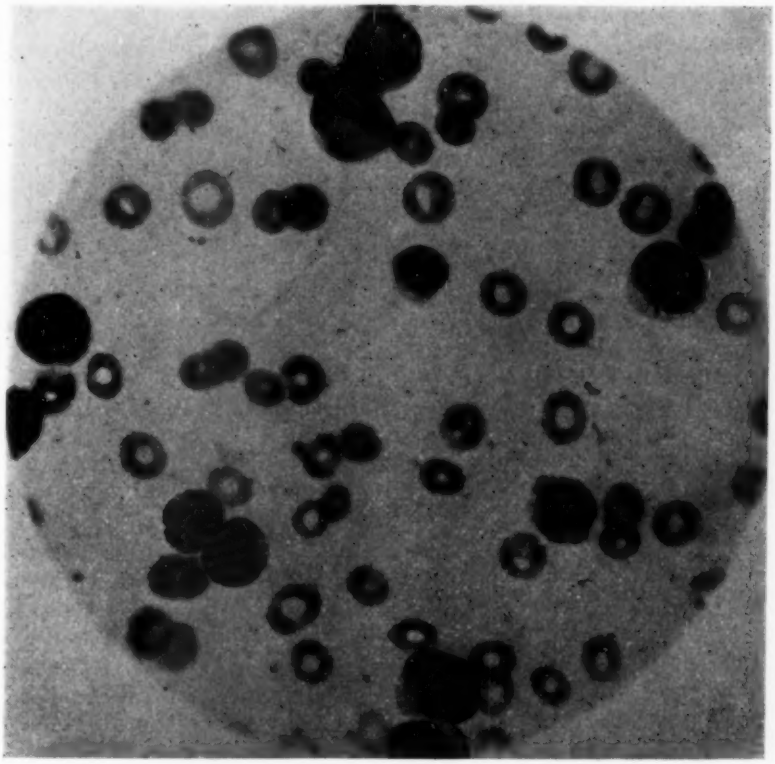

Fig. 1. Microphotograph of blood from case of lymphoblastoma of orbit, showing leucemia with cell inclusions.

PARINAUD'S CONJUNCTIVITIS.

(Leptothricosis of Conjunctiva.)

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With the report of three cases this paper discusses eosinophilia, present in all; the primary lesion, observed in two of these cases and the causative organism, apparently the filamentous organism described by Verhoeff, which was found in two of the present cases. From the Department of Ophthalmology, University of Nebraska Medical College.

EOSINOPHILIA.

In 1925 I reported[1] a case of Parinaud's Conjunctivitis in which blood examination showed an eosinophilia, supporting Weaver and Gillett's similar finding shortly before.[2] In my case eosinophils were only 3.5% at the time the only examination was made, while Weaver and Gillett found them to be 5 to 7½% in their case, and Rolandi[3] 8% in one case. These were the only cases in which differential blood counts had been reported, and it was suggested that further blood examinations in this condition might indicate eosinophilia to be an important diagnostic sign. Pascheff (see below) reported differential blood counts in two of his cases, eosinophils only representing .5% and 2% of the count, but these should probably not be considered true cases of Parinaud's conjunctivitis. Since that report, three typical cases have been seen by me, and all showed a definite eosinophilia.

CASE 1. Lewis H., a boy of seven, was seen with Dr. Harold Gifford on August 23rd, 1926. Two weeks previously his right eye had been bruised by another boy's foot and two days later it became inflamed. When first seen, the left eye was normal. The right eye showed marked swelling of the conjunctiva and lids. Both lids showed flat granulations, arising from the tarsal conjunctiva, and one similar nodule in the upper fold showed a yellowish area of necrosis. The right preauricular and submaxillary lymph nodes were swollen and tender. No constitutional symptoms were noted. Under applications of copper sulphate and the instillation of a weak copper sulphate solution, the condition improved and a month later his mother reported by letter that only slight swelling of the lids was still present. Conjunctival scrapings showed a few gram positive diplococci in the secretion, but not in the epithelial cells. A differential blood count taken at his first visit showed Polys, 46.5%, Lymphocytes 21%, Large Mononuclears 20%, Transitionals 2.5%, and Eosinophils 10%. Smears, sent in a month later for my examination, showed Polys 55%, Lymphocytes 30.5%, Large Mononuclears 9.5%, Transitionals 3.5%, Basophils 1%, Eosinophils .5%.

CASE 2. Dorothy W., aged four, was seen October 1, 1926. She had complained of having something in the right eye for several days. She had been playing a great deal with a pet cat. A raised, reddish nodule, the size of a grain of wheat, was seen in the lower fold. The rest of the conjunctiva was absolutely intact, and there was no glandular enlargement. Thinking that a foreign body might have become embedded in the conjunctiva and have formed a granuloma, the little nodule was excised flush with the conjunctiva with one snip of the scissors. One per cent mercurochrome was prescribed. One week later she was seen again, when the whole lower fold was filled with large raised follicles, some showing white areas of necrosis. The preauricular node was swollen and tender, and a superior cervical gland was palpable. A week later, the conjunctiva was about the same, the glands being more enlarged. The condition gradually cleared up, the cornea never being involved. Six weeks from her first visit practically all of the swelling had disappeared, and after three months only a marked pallor of the folds, like the atrophy seen after a mild case of trachoma, remained. Results of three differential blood counts were as follows.

	Polys.	Lymphos.	Large Monos.	Transitionals.	Eosinophils.	Basophils.	Myelocytes.
10-1-26	45%	27%	21%	3.0%	4.0%		
10-14-26	39%	38.5%	15%	.5%	4.5%	.5%	2%
2-1-27	50%	22.5%	8%	4.5%	4.5%	.5%	

CASE 3. Joe V., aged twelve, was referred to me by Dr. Phillip Levey, August 28, 1925. About a week before, something had blown into the right eye, which had been inflamed since then. The right upper lid showed a raised nodule two millimeters in diameter, broken down on the surface, and filled with whitish cheesy material. The whole upper fold was filled with enlarged follicles, and the preauricular and cervical nodes were markedly enlarged and slightly tender. The contents of the large nodule were removed with a sharp spoon, and put in Zenker's solution. On removing this material, a small flat brown foreign body was seen embedded in it, and under the microscope this appeared to be a fragment of broken down vegetable tissue, possibly a piece of dried leaf. One per cent mercurochrome was prescribed, and the patient was treated by Dr. Levey, thru whose courtesy he was seen several times. Two weeks later, both folds showed numerous follicles, many of which showed yellowish areas of superficial necrosis, and the glandular swelling continued to be marked. After another two weeks, the swelling was beginning to subside. Two months from his first visit the conjunctiva was smooth, but the superior cervical gland still slightly swollen. Differential counts were as follows:

Date	Polys.	Lymphos.	Large Monos.	Transitionals	Eosinophils	Basophils
11-12-26	44.5%	32.5%	12%	2%	8.5%	.5%
1-13-27	79%	14.5%	3%	2%	2%	.5%

In each instance two hundred, and sometimes three hundred cells, were counted; and only cells showing numerous distinctly refractile eosinophil granules were considered eosinophils. It will be seen that the eosinophils in the first case reached 10%, in the second 4.5%, and in the third 8.5%. In the first and third cases they returned to normal limits after the condition subsided, while in case two an eosinophilia of 4.5% was still present six weeks after all symptoms had disappeared. Another peculiarity about the blood picture was the increase in mononuclears, especially large mononuclears, which reached 20%, 21%, and 12% respectively in the three cases, and 18.5% in the case previously reported. A relative mononucleosis is not unusual in children; but an indication of its possible significance in this condition is the fact, that it returned to 9.5%, 8%, and 3%, respectively in the three cases after the subsidence of symptoms. Sections stained with Giemsa showed, in Case 2 no eosinophils, but in Case 3 fairly numerous typical eosinophils, three to five in every microscopic field, with distinctly refractile granules.

It would certainly seem to be more than a coincidence that all four of these cases in which the blood picture was studied should have shown a definite eosinophilia; and this evidence, with that of two cases reported by previous observers, would apparently justify the hope that future blood findings may determine in eosinophilia a sign of importance in the diagnosis of Parinaud's conjunctivitis. While the presence of eosinophilia might be considered in favor of a protozoan origin of the disease, there is little other evidence in this direction, whereas evidence in another direction is accumulating.

THE INITIAL LESION.

Cases of Parinaud's conjunctivitis are usually seen when fairly well advanced, and the usual picture is of numerous enlarged follicles, some showing points of necrosis, with a few large granulations. I have found no description of cases seen when only one lesion was present nor in which anything which could be considered a primary lesion was studied histologically. Thus it seems a rare coincidence

to have been able to see two cases so early as cases 2 and 3.

In case 2 only one nodule was present, a pinkish, polypoid mass the size of a grain of wheat, showing as yet no necrosis, and not having caused any glandular involvement. Involvement of the whole lower fold and the glands was very rapid, following the removal of this, and the upper fold became involved a few days after the lower. Sections showed none of the microscopic areas of necrosis as seen in later lesions, only an edematous connective tissue infiltrated with large and small mononuclears and epithelioid cells, whose origin from the endothelium of capillary blood channels could apparently be made out. No organisms could be found in this specimen nor any foreign body. A second nodule removed a week later showed the presence of the organisms to be described later in and between the epithelioid cells. These cells were increased relative to the other mononuclears, and one giant cell was seen. Areas of beginning necrosis were present, with epithelioid cells containing fragments of degenerated chromatin from broken down cells.

The picture here was different from that in Case 2, in that numerous masses of organisms were present. (See below.) There were two large spaces, lined with endothelium containing masses of organisms, and one of these spaces was continuous with a large mass of granular material on the surface of the section which took the Gram stain. Other areas, not so large, showed necrosis of the tissue around a mass of organisms. Surrounding each of these necrotic areas was a zone of infiltration, chiefly with large and small mononuclears, but with a fair number of eosinophils, polymorphonuclear leucocytes and epithelioid cells. Some leucocytes were seen to be undergoing degeneration, leaving free fragments of nuclei between the cells. Between the necrotic areas was an edematous connective tissue (See Fig. 2). No giant cells were seen.

It would seem that the specimen in Case 2 was removed at a very early stage, before any necrosis had taken place, and that the focus of organisms, which was probably present, was too small to have caused much cellular reaction, or to be found in the sections which were examined. The second case showed a later stage, when the organisms had multiplied in the tissues and had probably formed the large mass of organisms connected with the surface, whence they had spread by blood and lymph spaces to form secondary foci, with necrosis and a more intense infiltration around them. That this was still a fairly early stage is shown by the number of polymorphs in the infiltration, and probably also by the eosinophils.

Although there have been no reports of foreign bodies being embedded in the granulomata removed for sections in Parinaud's conjunctivitis, it seems likely that this is one of the ways in which infection occurs, the organisms being taken up by the lymph spaces and passing to the subconjunctival lymph nodes all along the folds, and thence to the preauricular and cervical nodes. The fact that the foreign body was of vegetable material is interesting, in view of the belief of Parinaud that the infection was usually of animal origin. H. Gifford[14] in the first report on Parinaud's conjunctivitis published in this country, considered the evidence in favor of an animal origin as not of decisive value.

THE CAUSATIVE ORGANISM.

In the report previously mentioned, a resumé was made of recent opinions as to the etiologic agent of Parinaud's conjunctivitis, and it was suggested that cases showing the syndrome of symptoms described by Parinaud could be classified as follows: 1. Those due to B. tuberculosis. 2. Those in which the leptothrix of Verhoeff were found, comprising at that time only Verhoeff's cases and those of Keiper and Wherry and Ray. 3. Those due to a virulent gram negative bacillus, identical variously as microbacillus polymorphus necroticans, and B. pseudotuberculosis rodentium. 4. Those in which no etiologic agent

was found, comprising the larger number of reported cases, in which I was obliged to include three personal cases because of failure to find the leptothrix of Verhoeff, or any other organisms, after careful investigation.

Findings in the last two cases reported above have necessitated a revision of opinion with regard to the importance of Verhoeff's findings, which caused him to propose the name leptothricosis conjunctivae for Parinaud's conjunctivitis. In Case 1, tissue was not removed for examination, and in Case 2 the primary lesion, prepared according to Verhoeff's technic, showed no organisms. A small nodule with a necrotic center removed a week later, however showed a fair number of gram positive threads and chains of dots, which greatly resembled the organism described by Verhoeff. The threads were very delicate, being often almost invisible, while the dots were never larger than the smallest streptococci. The longest threads were about twelve microns long, were curved, or V-shaped, and showed no branching. They were found between the mononuclear and epithelioid cells, some in the latter being in groups of two or three threads. (See Fig. 1.) No large masses suggesting a mycelium were seen. Sections stained by Giemsa and the Gram-Weigert method did not show any organisms.

Case 3 showed large masses of threads, in blood or lymph spaces, and smaller foci, where the granular form predominated, were present in necrotic areas, as described above. While it was difficult to follow individual threads in the tangled mass, many reached a length of thirty to forty microns before leaving the level of the section. The width of the threads was never over one-third to one-half micron, about that described by Verhoeff, but this is distinctly more delicate than the threads of leptothrix as I have seen it in smears and cultures from tonsils, conjunctiva, and Meibomian glands, and corresponds more to the size of Streptothrix or Actinomyces Albus. (See Fig. 2.) Also, in these tangled masses, it seemed that branching could be observed. It is possible that this effect may have been simulated by threads placed together, and no definite statement could be made without cultures. Cultures, on agar and blood serum showed only the usual conjunctival saprophytes. Sections stained by Giemsa and Gram-Weigert did not show the organisms. Dr. Verhoeff who kindly examined a section from this case reports that the organisms are identical with the leptothrix described, and he was able to stain the organisms better in this section, by very brief differentiation in alcohol and chloroform (not more than three seconds each).

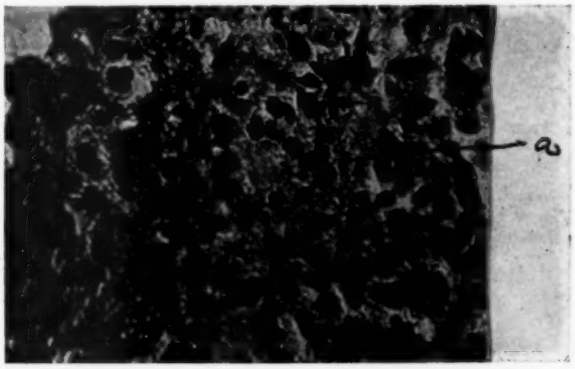

Fig. 1. Parinaud's conjunctivitis. Oil emersion photograph of tissue in Case 2. (a) A few single threads in lymph spaces.

Verhoeff[4] reported finding a filamentous organism, staining gram positively by his special technic, and which he considered to be a leptothrix, in seventeen out of eighteen cases.

Keiper[5] reported several cases in which apparently the same organism was found. Lemoine[6] reported it in one case. Dunphy[7] has this year reported two cases in which Verhoeff was able to find the organisms. All of these positive findings have been made in material examined in Verhoeff's laboratory. None of these observers were able to obtain cultures of the organism, but Wherry and Ray[8] from one case obtained on Dorsett's egg medium under anaerobic conditions a growth of a filamentous organism which produced multiple abscesses and purulent conjunctivitis in a mouse. Altho the organism was gram negative, they considered it probably identical with that described by Verhoeff. No tissue was excised for examination, the cultures being obtained from a preauricular gland, so that the histologic picture of Parinaud's could not be confirmed in their case.

Other observers, among them Connell[9] and myself, have carried out Verhoeff's technic without finding the organisms. Tho originally of the opinion that this indicated absence of the organisms from this group of cases, the finding of them in two later cases has made it seem at least possible that technical difficulties prevented their discovery in many cases. Careful adherence to Verhoeff's technic especially as to time of staining and decolorizing, is necessary, and sections must be very thin, five microns or less, otherwise they can not be properly differentiated. The ordinary Gram-Weigert method even with sections as thin as this, does not allow differentiation of the delicate organisms. Verhoeff considered his organism a Leptothrix, since he observed no branching of the filaments. If the arrangement seen in my Case 3 represents true branching, this would make the organism present in that case a Streptothrix, and on account of the obvious difficulties of observing threads in thin sections, it is impossible to say that the organisms in Verhoeff's cases did not branch. However, it will undoubtedly be possible some day to grow the organisms, when this point may be definitely determined, and meanwhile, it is probably correct to let Verhoeff's proposed name for this group of cases, Leptothricosis Conjunctivae, stand. The method of tissue cultures, as suggested by Dr. Miller of the Pathology Department of the University of Nebraska, would seem a promising mode of attack.

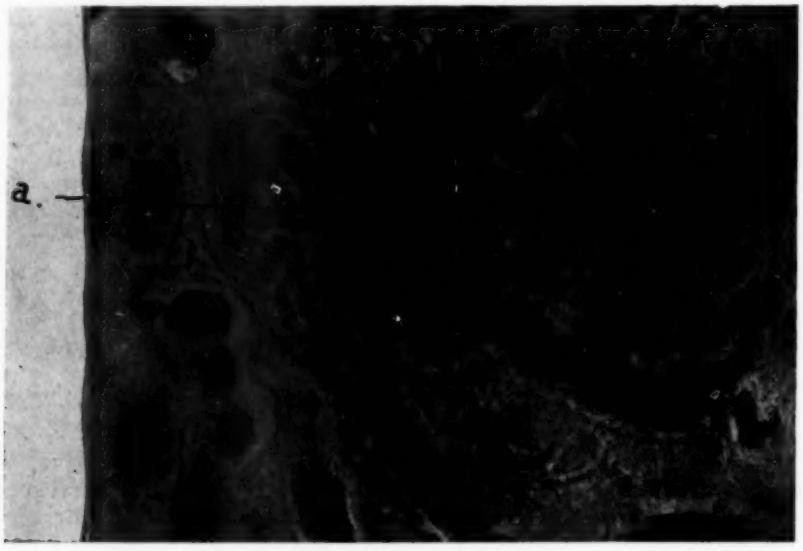

Fig. 2. Parinaud's conjunctivitis. Oil emersion photograph of tissue in Case 3. (a) Clump of threads in necrotic area.

The finding of the leptothrix by six different observers, if it is borne out by further observations, should make possible a simplification of the present confusion, under which at least three different conditions are included under the name of Parinaud's conjunctivitis. Referring to the groups of cases mentioned above, it seems evident that those due to B. Tuberculosis belong nowhere else than under tuberculosis, however indistinguishable they may be clinically from Parinaud's cases.

Those in Group 3, in which Microbacillus Polymorphus Necroticans or B. Pseudotuberculosis Rodentium were found, probably form a separate clinical entity, as Pascheff believed, for which he suggested the name of infectious necrosing conjunctivitis. His cases showed no vegetations, only fine points of necrosis, fusing to form ulcers. In this group belong the cases of Pascheff,[10] Bayer and von Herrenschwand[11] and Rosentein[12] and perhaps that of Delmonte.[13]

The cases of conjunctival infection with B. tularensis which have been reported in this country by Vail, Sattler and Lamb, and recently by D. T. Vail, Jr.[15] are nearer to this group than to true Parinaud's conjunctivitis, tho B. tularense shows certain differences from Pascheff's organism, which grows on ordinary media, while B. tularense has usually been grown only on special cystin containing media from lesions in inoculated animals. This would leave only two groups, "Leptothricosis" and "Etiology Unknown," and if more cases are added to the first group, it will seem probable that a number of the second group really belonged in the group of Leptothricosis, and would have been placed there, but for technical difficulties.

SUMMARY.

1. Differential blood counts in three cases of Parinaud's conjunctivitis showed an eosinophilia, reaching 10%, 4.5%, and 8.5%, and an increase in large mononuclears to 20%, 21%, and 12%.

2. The primary lesion was seen in two cases, in one of which a foreign body was embedded in the lesion.

3. Two cases showed a gram positive thread like organism in sections which corresponded with the organism described by Verhoeff as a Leptothrix.

The author wishes to express his thanks for the careful work of Miss Mildred Braden which resulted in the first successful staining of the leptothrix in Parinaud's conjunctivitis made outside of Dr. Verhoeff's laboratory.

Medical Arts Bldg.

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CONCOMITANT DIVERGENT STRABISMUS.

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The literature is deficient with regard to this form of strabismus. Myopia may be present, but often it is due to other causes. Divergence excess, convergence insufficiency and a combination of the two are to be looked for in its etiology. In its development one factor may be added to the others. Treatment must be based on an understanding of the causation. Read before the Buffalo Ophthalmological Club, February 10, 1927.

Convergent strabismus because of its greater frequency, has been investigated from every angle and much has been written about it whereas divergent strabismus has received very little attention. It is commonly believed that divergent squint is much more difficult to correct than the convergent type. The ease with which this sort of a deviation can be corrected and the scarcity of the literature are my reasons for presenting this subject.

ETIOLOGY.

Since the correct treatment of any condition demands a thoro knowledge of its etiology let us consider divergent strabismus from a causative angle. For many years these cases have been classified according to the refractive error present, and such a classification has led to the wide spread belief that myopia is an almost constant accompaniment. Wootton in 1915 stated that hyperopia and not myopia was the refractive error most frequently encountered. This was his opinion after the study of a large number of these cases. We all know that any type of refractive error may accompany a divergent strabismus, but only a myopia or an anisometropia can produce it.

Many of these squints are therefore nonrefractive in origin and any classification based upon the accompanying refractive error does not take into account this rather large group. As Wootton[1] pointed out such a classification "takes no cognizance of the fact that any one of three muscular types may be present, usually assumes that all cases of divergent strabismus are accompanied and caused by a convergence insufficiency and most frequently predicates one surgical procedure in all instances."

These cases should be classified according to the muscular anomaly or anomalies producing the conditions. In 1904 Duane[2] showed that the muscular anomalies capable of causing a nonparalytic divergent strabismus are (1) a divergence excess, (2) a convergence insufficiency, (3) a combination of these two anomalies. Such a classification is ideal, because it considers the component factors in every case of concomitant exotropia. Agreeing, as I do, with Duane that every concomitant divergent squint results from a combination of a divergence excess and a convergence insufficiency. it is important to study these muscular anomalies in greater detail.

DIVERGENCE EXCESS.

For years the act of divergence was considered a purely passive affair, due to a relaxation of the power of convergence. But, as I[3] said in a previous article, "we know that it is an active as well as a passive affair which is brought about by a simultaneous equal contraction of both external recti accompanied by simultaneous relaxation of both internal recti." It is used to keep our eyes parallel when we look at distant objects and is in complete relaxation when our fixation is at close range. The location of the center controlling this movement has not been definitely proven, but clinical evidence makes us admit its existence. Divergence excess may be described as an abnormally strong tendency towards an outward deviation of the eyes, produced by an overstimulation of the center of divergence. It is obvious then that a pure divergence excess produces an outward deviation on distant fixation; but as long as the power of convergence remains normal the muscular balance at 13 inches stays essentially normal.

Divergence excess may be primary, or secondary. The exact etiology of primary divergence excess is not

thoroly understood except that, as a congenital lesion, there is an overstimulation of the center of divergence. However, these cases usually escape detection until late in childhood or early adult life, because in youth the opposing power of convergence is so strong that it is no effort for these young patients to overcome this tendency towards an outward deviation. As the years pass and the converging power loses some of its strength the condition begins to manifest itself. At first there is a transitory outward deviation, when the patient is too fatigued to use his maximum convergence. This explains the socalled "wandering eye," which is such a common complaint among these patients. Primary divergence excess is nonrefractive in origin, but more commonly associated with hyperopia. It may remain latent for years, but there is a tendency towards a gradual secondary weakening of the power of convergence. The treatment of this condition is purely surgical, and a very satisfactory correction of it can be obtained by tenotomy of both external recti.

Secondary divergence excess is that overactivity of the diverging power, which comes as the result of an untreated severe convergence insufficiency, and the treatment of it is the same as for the primary form.

CONVERGENCE INSUFFICIENCY.

The power of convergence is used at close range and is in complete relaxation on distant fixation, so an outward deviation, due to a weakness of this power, will manifest itself at close range and not at 20 feet. Convergence insufficiency may be accommodative, or nonaccommodative in origin. It may be the primary muscular anomaly, or it may follow a divergence excess.

The accommodative type we encounter in uncorrected myopia, and here a full correction may remove the deviation. Closely akin to the accommodative type is the visual form in which, owing to the indistinctness of vision of one or both eyes, the patient has little impulse to converge. The outward deviation of a blind eye usually results from a convergence insufficiency of this type.

The nonaccommodative convergence insufficiencies comprise about 60% of the primary forms of this trouble. In this group are included all those cases in which the refraction and accommodation can not be considered as the etiologic factor e. g. those associated with a low degree of hypermetropia. The most common causes, as enumerated by Duane,[4] are "(a) conditions causing general nervous or systemic depression (neurasthenia, hysteria, anemia, convalescence from exhausting illness, etc.), (b) nasal obstruction, (c) some unknown cause acting in persons whose muscular power and coordination otherwise seem normal."

There is no hard and sharp line of demarcation between a convergence insufficiency and a convergence paralysis, except the latter term is reserved for those with sudden onset, evidently due to a localized lesion, or functional disturbance of the nerve centers. It is encountered in multiple sclerosis, epidemic encephalitis, tabes and many other diseases of the central nervous system.

Convergence insufficiency, with its myriad of causes, presents a more difficult therapeutic problem than does divergence excess; and occasionally these cases have to be thoroly investigated, not only by the ophthalmologist but also by the neurologist, the rhinologist and the internist, to determine the exact etiologic factor. Difficult as this may seem, it is important if we are to effectually combat the condition. Fortunately in the majority of our cases we find either a myopia, an anisometropia or some other obvious etiologic factor present. Having determined the cause we direct our attention to it, and should this not benefit, then we resort to prismatic exercises, or lastly to operation. Here the surgical procedure should be a resection of one or both internal recti. It is not pertinent to discuss in detail the treatment of convergence insufficiency, for only the severe forms result in a divergent strabismus.

The differential diagnosis between a convergence insufficiency and a divergence excess is made by a comparison of the muscular imbalance at 20 feet and at 13 inches, along with an estimation of the near point of convergence. The accurate measurement of the amount of deviation present at both these distances can best be done by the use of the screen test. Altho Duane, as long ago as 1899, described this method of measurement of a muscular deviation, it is not universally used. Most ophthalmologists still measure their squints with a perimmeter, or simply guess by a casual glance the amount of deviation present. The screen test is easy to employ, applicable to all cases, except those with the loss of power of central fixation in one eye, and records in prism centrads the deviation present. It can furthermore be used at any distance and in any direction of gaze. For fear that this simple test is not clearly understood I will quote Duane's[5] description of the method of application:

"The patient is directed to look sharply at the test object and then a card is placed before the right eye and passed quickly to and fro from one eye to the other. If there is squint, or heterophoria of more than a degree or two, each eye when covered will deviate and when uncovered will turn back into the fixing position. The amount of deviation can be roughly determined by inspection, but it is best measured accurately by placing a prism before the eye (apex in the direction in which the eye is deviated) and increasing the strength of the prism until the screen deviation is first abolished and then converted into the movement in the opposite direction. The first prism that causes this overcorrection less 2° represents the amount of the deviation." The near point of convergence is best determined by carrying a fine test object up towards the eyes, and urging the patient to converge on it as much as possible. A dimmed ophthalmoscope light e. g. the May ophthalmoscope with its head and cap removed, and the light at its lowest intensity, is, in my hands, the most satisfactory test object.

DEVELOPMENT.

The tracing of the development of a concomitant divergent strabismus, out of a divergence excess or a convergence insufficiency, affords a very interesting study. Divergence excess in its incipiency produces only a marked exophoria for distance, with an excessive prism divergence, associated with normal near findings; however, as time passes the outward deviation at 20 feet becomes more pronounced, until it is an actual squint, while at the near range there is only a moderate amount of exophoria. This is the socalled periodic squint. Still later the convergence begins to weaken, and we get a squint for near, but much less marked than for distance, whereas in the final stages the deviation becomes the same for distance and near.

Those concomitant divergent squints developing out of a convergence insufficiency pass thru similar steps, the only difference is that here the deviation at first is only present at close range, with normal muscular balance at 20 feet. Secondary overactivity of the diverging power sets in and causes a deviation at 20 feet. At first this is only an exophoria, but later it becomes a squint for both distance and near, greater in amount at close range; eventually, however, the deviation gets to be the same for both distance and near.

TREATMENT.

Having considered the phases in the development of concomitant divergent strabismus, it is interesting to see what effect this has on the treatment of it. When a squint has become continuous and comitant, it is always a complex condition composed of several factors. The correct treatment of it therefore has to take into consideration each factor, for anything other than this will certainly result in failure, but while a squint is still periodic we may hope to succeed by removing this factor alone.

A periodic divergent strabismus due to a divergence excess, where the con-

vergence weakness is not pronounced, can be relieved by tenotomy of the external recti; while one due to a primary convergence insufficiency, without a secondary divergence excess, should not be treated in this manner, but here our attention must be directed to the removal of the cause of the weakness of convergence. We have seen that this type of muscular anomaly may be accommodative in origin; if so, the correction of the refractive error (myopia) will remove the deviation. If it is of the nonrefractive type and conservative treatment has failed, then the proper operative procedure is a resection of one or both internal recti.

Should we be confronted with a continuous and concomitant divergent strabismus, we have to treat both of the underlying muscular conditions. The divergence excess we remove by tenotomy of the external rectus and the convergence insufficiency, if nonaccommodative, by a resection of the interal rectus. If this combined operative procedure, when done on one eye, is insufficient the amount of deviation, remaining at 20 feet and at 13 inches, will determine what type of operation should be performed on the other eye.

SUMMARY.

1. Concomitant divergent strabismus begins either as a divergence excess, or as a convergence insufficiency; and having started in one of these two ways there is a gradual secondary involvement of the originally unaffected power.

2. The treatment of a nonparalytic divergent strabismus should be undertaken while it is still in the periodic stage, for its correction at this time involves the treatment of only one muscular anomaly.

3. A concomitant exotropia is a complex affair, and the proper treatment of it demands a knowledge of the etiology and treatment of its component muscular anomalies.

30 *West 59th Street.*

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HYALINE THROMBOSIS OF CHOROIDAL VESSELS IN GLAUCOMA.

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A blind, painful, glaucomatous eye was enucleated. The vitreous chamber contained exudate, with the almost completely detached and folded retina. The posterior choroid was thick, the walls of the vessels thickened and some veins occluded. Many contained thrombi, or hyaline material. Probably the thrombosis preceded the glaucoma. This etiology for glaucoma has not attracted attention, altho ligation of vortex veins has produced it experimentally. Read before the Chicago Ophthalmological Society, March 21, 1927.

A careful review of the literature, of the past ten years, has failed to disclose any reports on choroidal thrombosis in glaucoma, either as an etiologic factor or pathologic condition, and I have been unable to find anything in the text-books on the subject. That such (hyaline) thrombi, by blocking the overflow of blood from the choroid, might have something to do with the increase of tension in my case, is the reason for making this report.

According to Delafield and Prudden,[1] hyaline thrombi are found under a variety of conditions, but especially in local and general infections. They occur in the capillaries, the small

arteries and veins, as a homogeneous, translucent, nearly colorless material, partly or wholly blocking the vessels. This hyaline material, whose origin is still in doubt, has in some instances a staining reaction similar to fibrin. In other cases hyaline thrombi are probably special forms of agglutinative thrombi. These may arise from the development of agglutinative substances in the blood. Under the action of these substances the red blood cells may, without the formation of fibrin, clump together leading to thrombosis. In such masses of red blood cells agglutinated together, the individual cells may not be seen, the whole presenting a hyaline mass. Thus may be formed a variety of the socalled hyaline thrombi.

J. Herbert Parsons,[2] mentions the occurrence of hyaline thrombi in the choroidal arteries in cases of nephritis and lead poisoning, and also states that it may occur in the veins. He cities a report on the above by J. M. Oeller.[3] Collins and Mayou[4] simply state that choroidal hemorrhage may be due to thrombosis of a choroidal vein, but they give no references. Hepburn[5] places innocent emboli and thrombi, or endarteritis, under the vascular diseases of the choroid, but bases his conclusions on his ophthalmoscopic findings. That is practically all that I have been able to find in the literature on choroidal thrombosis.

HISTORY OF CASE.

Male. Age 60 years. Married. Swedish nationality. The patient was seen first by me at his home Nov. 16, 1922. He stated that one month previously he suddenly lost the vision in his left eye; from an intraocular hemorrhage, according to the diagnosis of the physician, whom he called. Twenty days after losing his vision, and ten days before I saw him, the left eye began to pain and became inflamed. He never had any eye trouble before; and his right eye is now good.

The eye findings at this time were: Right eye. Vision: Fingers at least ten feet away. Pupils, tension, media, and disc show nothing pathologic. Left eye: Cornea is steamy, cloudy, and the epithelium is rough and un-

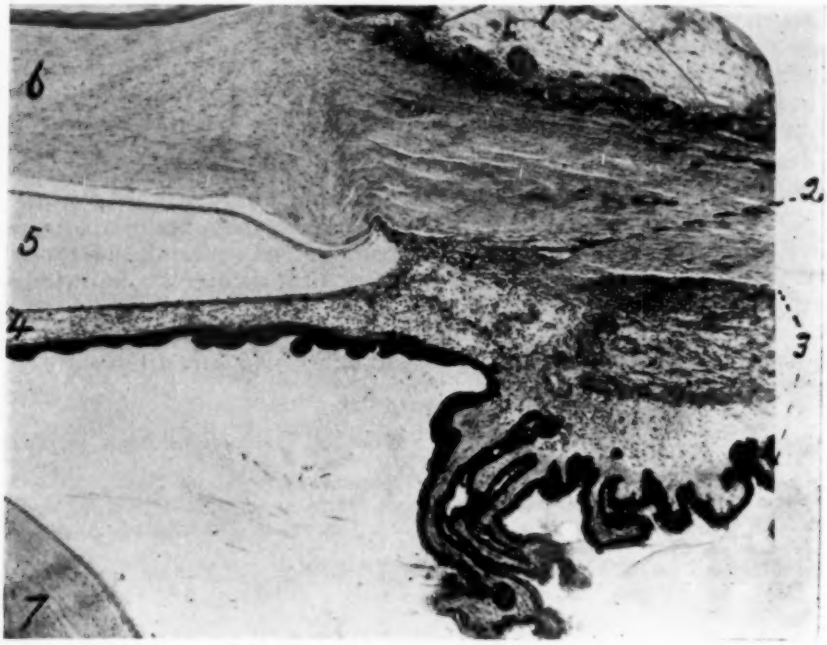

Fig. 1. 1. Ciliary and episcleral hyperemia. 2. Canal of Schlemm and anterior root synechia of iris. 3. Swollen congested ciliary body. Exudate between muscle fibers. 4. Iris. 5. Anterior chamber, shallow. 6. Cornea. 7. Lens.

even, giving appearance of ground glass. The anterior chamber looks definitely deep. The pupil border of the iris is irregular, and adherent posteriorly to the lens; there is a deep mixed injection of the blood vessels. Tactile tension is hard. No fundus was seen, on account of cloudiness of the media. Very little left red reflex. The patient's blood pressure is 200.

No. 17, 1922. Under the use of 1% eserin solution for twenty-four hours, in the left eye, the pain is less. Left pupil is 3.5 mm., round and regular. No consensual pupil reaction. No light perception in left eye. Schiötz R. = 18; L., 70 mm. Nov. 19, 1922. The patient was seen in consultation with Dr. E. V. L. Brown, who advised enucleation of the left eye, if the tension did not go down below Schiötz 50 after 48 hours more use of the eserin.

Nov. 22, 1922. Under the continued use of eserin, the patient's condition remains about the same. Pain in left eye is very severe. Schiötz 70. Nov. 23, 1922. The patient was operated at St. Joseph's Hospital, and the left eye removed under ether anesthesia; on account of it being a blind, painful eye and the age and general condition of the patient not warranting further suffering. At the time of the operation the hospital nurse informed me the patient's record showed a reported ++++ albumin in the urine. The patient made an uneventful recovery, but died a year later with pneumonia.

The eye was put into 5% formalin, immediately after enucleation, for three hours; then transferred to Zenker's solution; and later run thru the customary alcohols. It was cut into horizontal serial sections, and about every tenth section stained and mounted for study. It was thought that this eye might show something of interest because (1), the patient, from the history, had only had the glaucoma two weeks, (2), it was of the acute congestive type, and (3), there had been no previous operative procedure to complicate the picture.

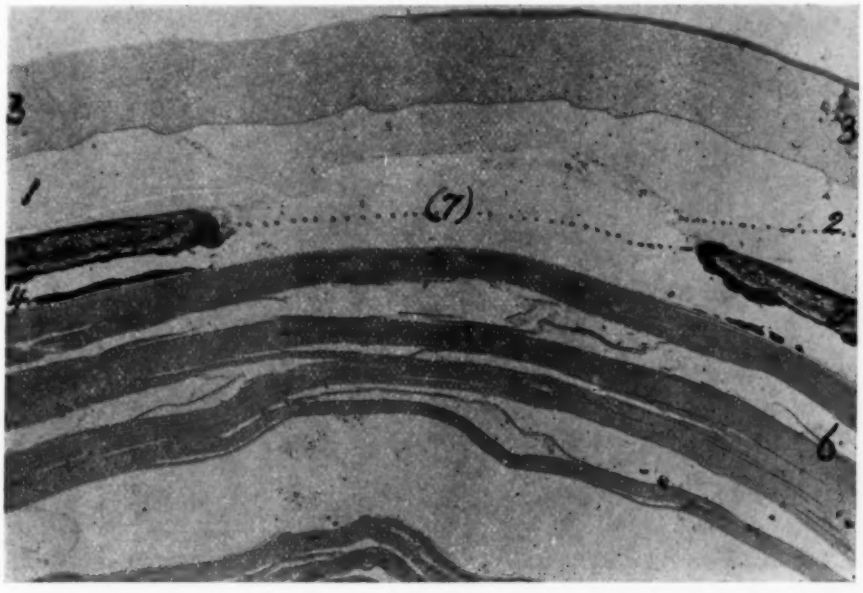

Fig. 2. L. Anterior chamber. 2. Pupillary exudate. 3. Cornea. 4. Cataracta accreta on anterior surface of lens. 5. Infiltrated thin iris. 6. Lens. 7. Pupil.

DESCRIPTION OF SECTIONS.

The corneal epithelium is thin, uneven, and in places absent. At the limbus it is raised up from the sclera by the numerous distended blood vessels and edematous infiltrated episcleral tissue. Bowman's membrane is intact. The corneal stroma is thin, especially in the center of the cornea. Descemet's membrane and the endothelial layer

are intact. There are a few round cells on the back of the cornea and in the aqueous of the anterior chamber.

The sclera is somewhat thin, especially at equator of eye.

Schlemm's canal is present in nearly all sections; usually wide open, and filled with red blood cells. Section number 137 shows it communicating with a vessel in ciliary body. The pectinate ligament is well developed and spaces of Fontana are easily made out. These spaces, in some sections, have some red blood cells and leucocytes in them. The iris angle is completely blocked off, in practically all sections, by anterior root synechia of the iris, which is adherent from root of iris to end of Descemet's membrane.

The anterior chamber is definitely shallow, the iris and lens lying much closer to posterior surface of the cornea than is normal. The aqueous appears as a homogeneous, light, red tinged material, as compared to that in posterior chamber which is clear. (Albuminous condition.) The iris is somewhat thin; contains many blood vessels, which are usually empty or slightly filled with blood. There is also considerable round celled infiltration in the stroma. In the pupillary area is a slight organized exudate, extending from pupil border into the aqueous; the pupil is mostly bound down by posterior synechia, and where pulled loose one finds cataracta accreta on the anterior surface of the lens. The lens is fairly large and lies farther forward than is normal. There are also central sclerotic changes.

The ciliary body is quite large, with muscle tissue well developed. The muscle fibers in places are separated by a homogeneous, reddish stained (albuminous) material, which also is found between the muscle and pigment layer in considerable amount. Many vessels filled with blood are found in the ciliary body.

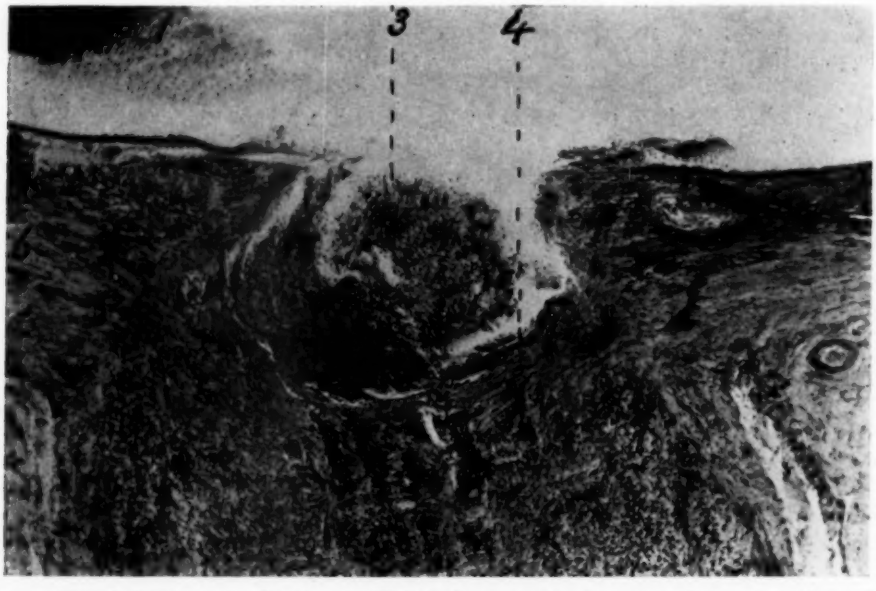

Fig. 3. 1. Detached retina. 2. Choroid. 3. Glial (and nerve) plug in cupped disc. 4. Lamina cribrosa. 5. Optic nerve. 6. Sclera.

The posterior cavity of the eyeball is filled with a finely interwoven, cobweb like material together with the almost completely detached and folded retina. The retina beside being detached, is largely covered with an exudate, especially in the macular region. There are many small clear spaces in the ganglion cell, internal nuclear, and internal plexiform layers, of the retina; and occasionally one can find small areas of exudate in these layers.

The disc is only moderately cupped: the lamina cribrosa is slightly curved

backward, with concavity forward; the edges of the cup are mostly straight back or somewhat undermined. There is still a plug of glial (and nerve) tissue in the cup, and in this plug, in some sections, one finds small spaces between the bundles of glial tissue, "cavernous degeneration" of Schnabel.

The choroid, in the anterior half of the eye, is markedly compressed and thin; and contains very few visible blood vessels, in marked contrast to the choroid in the posterior half of the eye. Here the choroid is definitely thick, especially in the macular region, being in places as thick or thicker than the overlying retina. The blood vessels are numerous and distended with blood, especially the veins. The walls of the vessels are in many places found thickened, especially just under their endothelial layer. Some few small vessels are occluded by an endophlebitis. Many of the veins contain more or less of a homogeneous, light, red stained material (hyaline), which completely fills many of the smaller vessels. One also finds a few vessels filled with ordinary thrombi composed of fibrin, leucocytes, and red blood corpuscles; but these latter are much less frequently found, as compared to the quite frequent hyaline masses (hyaline thrombi). There is very little leucocytic infiltration in the choroid; in the anterior half of the eye the choroid is detached; and at the equator one finds it separated from the sclera by a brownish, poorly defined mass (old hemorrhage?). The vena vorticosa are practically collapsed and empty, with slight leucocytic or round cell infiltration around them.

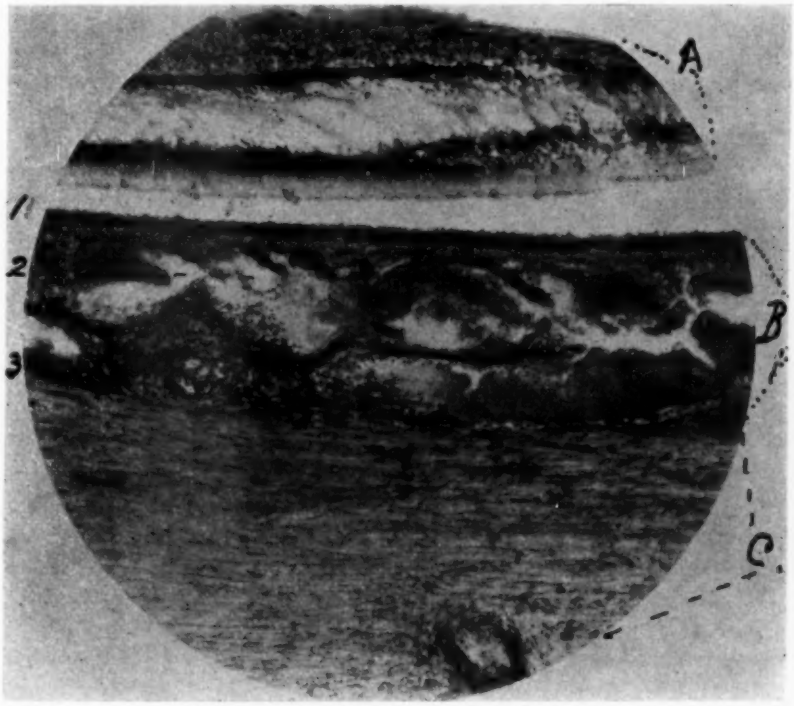

Fig. 4. A. Retina, macular region; cystic degeneration. B. Choroid; 1. Pigment epithelium. 2. Ordinary thrombosis in vein. Fibrin, leucocytes and red cells. 3. Endophlebitis of vessel. Complete closure. C. Sclera.

As to the sequence of events; it is probable that this patient first developed a thrombosis of the vessels in the posterior half of the choroid; this caused a swelling and edema of the choroid, with exudate between the retina and choroid (retinal detachment). A hemorrhage of the choroidal vessels followed, in the region of the equator of the eye. All of the above would tend to raise the tension in the vitreous

cavity, pushing the lens and iris forward against the posterior surface of the cornea and blocking the escape of aqueous thru the canal of Schlem. This would result in an increase of the whole intraocular tension. The eye became congested (by strangulation) the ciliary body and iris became swollen and inflamed, albuminous changes in the aqueous took place; the disc became cupped, etc.

While I have been unable to find anything in the literature concerning choroidal thrombosis as being a factor in the causation of glaucoma as outlined above, nevertheless, I have been able to find many articles which indirectly support such a proposition, based both on experimental and pathologic findings. That our knowledge, as to the cause of glaucoma, is incomplete is evidenced when one realizes how many and diverse are the theories as to the etiology of glaucoma. This is, no doubt, the result of the large number of different pathologic conditions, which have been found in eyes enucleated after glaucoma. These pathologic findings can be grouped under three classes:

(1). Those which, directly or indirectly, were the cause of the increase of intraocular tension,

(2). Those which, directly or indirectly, were the result of the increase of pressure, and

(3). Those which were the result of other conditions.

I do not wish to discuss these various theories; but only wish to add another pathologic condition to our already long list, which may have been a causative factor in the increase of tension in my case, namely choroidal thrombosis.

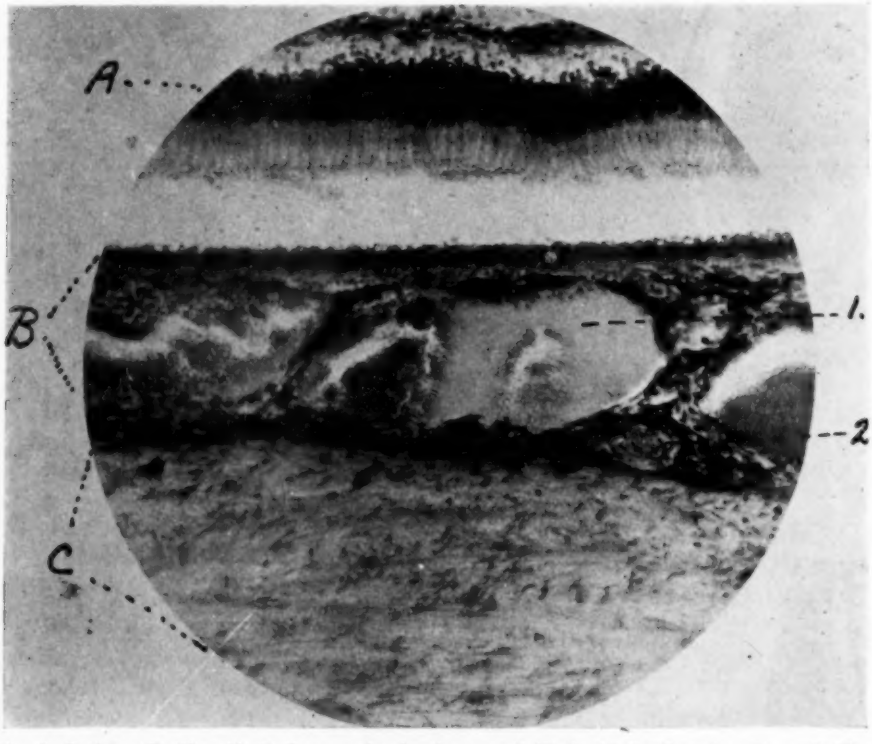

Fig. 5. A. Retina. B. Choroid; 1. Large vein showing vessel filled with hyaline thrombus. 2. Thrombus in small vessel. C. Sclera.

Elliot,[6] in defining glaucoma says, "The term glaucoma is not the title of any one single disease. It is rather a convenient clinical label for a large group of pathological conditions, the distinctive feature common to all of which is a rise in the intraocular tension." He further states that, "All the different factors, which from time to

time have been cited as causes for glaucoma, may ultimately be classified under one or other of two headings: (1), those which influence the balance of secretion and excretion of the intraocular fluid, and (2) those which directly or indirectly determine a change in the vascular conditions prevailing within the eye."

That a disturbance in the outflow of blood from the eye might be the cause of certain cases of glaucoma, has long been the subject of much discussion, based on both experimental and pathologic findings.

Collins and Mayou,[7] make the following statement: "Experiments have shown that the ligature of all vortex veins leads to albuminous exudation into the subretinal space and aqueous chamber, and to secondary glaucoma. If however only one vein is occluded, no rise in tension is produced. It is probable that thrombosis of the vortex veins occurs more frequently than the records of it would lead us to believe."

Fuchs states in his text-book, that elevation of pressure in the vitreous cavity may be produced by venous stasis in thrombosis of the retinal veins (glaucoma hemorrhagicum), and in blocking of the vena vorticosae by tumors, endophlebitis, and also in experimental ligation of the vena vorticosa. As regards experimental ligation of the vortex veins, the work of Koster[8] is interesting. He found that when all four veins were ligated very high tension immediately came on; the pupil dilated and the anterior chamber became shallow; the iris vessels filled with blood; and a marked swelling of the ciliary body could (in albino rabbits) be readily seen with the ophthalmoscope.

In a recent article Magitot and Bailliart,[9] in writing on glaucoma, suggest the idea that glaucoma may be due to a local increase in the intraocular venous pressure from various causes, nervous conditions, sclerosis of vessels, endophlebitis, etc. Birnbacher and Czermak[10] reported eyeballs enucleated after glaucoma in which they found endo- and periphlebitis of the anterior perforating vessels, or of the vortex veins. Levinsohn,[11] Hussel,[12] Thomsen,[13] and Hanssen,[14] have reported changes in the vortex veins in cases of glaucoma.

Gradle,[15] in an article on the use of adrenalin to reduce the tension of glaucoma, says he "believes that the adrenalin acts as a stimulus to the sympathetic system and nerve fibers that are the vasomotor control of the eye. That the sympathetics in the orbit are stimulated by the adrenalin injection is definitely shown by the enormous dilatation of the pupil that follows the injection. In all probability the intraorbital vasomotor sympathetics that come to the eyeball by way of the ciliary ganglion are likewise stimulated, with resultant contraction of the vessels of the choroid and ciliary body. Such a contraction produces a decrease in the actual intraocular content and lowers the pressure in the vitreous chamber somewhat below that in the aqueous chamber. As a result the diaphragm of the eye (iris and lens) is retracted backward and the peripheric portion of the iris pulled back from the angle of the anterior chamber." In this manner he believes adrenalin lowers the tension in glaucoma. In another article,[16] after a review of the literature, he puts forward the proposition that acute congestive glaucoma may be the result of some sort of sympathetic stimulation, causing a dilatation of the choroidal vesels with a corresponding increase in the vitreous pressure.

SUMMARY.

That obstruction to the outflow of blood thru the vortex veins may be a cause of glaucoma, has been demonstrated quite conclusively by experimental ligation. This is further substantiated by the above pathologic reports of peri- and endophlebitis of the vortex veins occurring in cases of glaucoma.

That obstruction of the choroidal veins, which empty into and go to form these vena corticosae, may also be the cause of an increase in intraocular tension seems logical, especially when one considers the effect of adrenalin in lowering the tension by its constriction of the choroidal vessels.

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COLONIC SYNERGISTIC ANALGESIA.*

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The advantages of this method for operations on the eye that require more than local anesthesia are stated. The technic of the method of producing such analgesia is described, and some incidents of experimental experiences with it are given.

It is my belief that all new methods should be subjected to collective investigation, to determine their true value. Therefore, I submit this paper only in the form of a preliminary report of Synergistic Colonic Analgesia used as an aid to local anesthesia in operative ophthalmolgy.

Colonic analgesia has for some time been used very successfully in obstetric work—Gwathmey's technic being used extensively. In 1924 Lederer reported used ether analgesia in operations about the head and neck of a general surgical nature.

The advantages in using a similar but modified technic in some types of ocular surgery are as follows:

First: The elimination of the element of fear in the patient. The patient is in the stage of both analgesia and amnesia, usually remembering nothing of the operative experience.

Second: There is an almost hypnotic control over the patient. He will answer questions and move just as told to do, responding nicely to orders.

Third: The analgesia is smooth and even. There are no sudden changes in the attitude of the patient. He can be more easily sized up before starting the operation.

Fourth: The patient has an even, natural respiration; even when complete anesthesia is used.

Fifth: The procedure is not disagreeable to the patient. After operation the patient goes into natural slumber and awakes hungry and refreshed. There is no nausea and vomiting.

Sixth: Advanced senility is no contraindication.

When I first began trying out this method I feared mostly two things, nausea and vomiting, and the usual excitement stage of ether. On consulting with Dr. Gwathmey in New York, he was very generous of his time and enthusiastically helped me work out a method to avoid these dangers.

Gwathmey says that ether by rectum does not cause nausea and vomiting, or distention, if properly given. Also, there is no excitement stage in rectal anesthesia. Even with large doses there is no shock, and the toxicity extremely low. There is no subsequent rectal irritation after its use. Again, morphin sulphate is less likely to cause nausea when used with magnesium sulphate.

Nurses can easily be trained to do

*Read before the New England Ophthalmological Society. See p. 520.

the routine and everything is done at the time ordered by clock. However, an expert in the giving of colonic ether should have charge of the technic and, until the others understand just how to do their part, should be on hand from the first to see that it is properly managed. Poor results are usually due to faulty technic.

I have been particularly fortunate in having with me Dr. McQuillan, recent resident of the New York Lying-In, who has had considerable experience in handling colonics under Gwathmey.

The best stage of analgesia for our work has been produced by the carefully combined synergistic action of four drugs—morphin sulphate intramuscularly, and a mixture of paraldehyde, ether, and oil by rectum.

Due to lack of abundant clinical material we first worked out various technics on extraocular, operative cases including sac extirpations, enucleations, and a couple of tarsectomies.

Following this, we used our present routine, with slight variations, on twelve intraocular operations—cataracts and iridectomies.

THE TECHNIC.

The retention enema can be made up the night before as follows: Fresh ether 2½ to 3 ozs., paraldehyde 2 to 8 c.c. (depending on size of patient, and whether there is an alcoholic history, or not), and pure olive oil 2 ozs. Keep tightly corked in a 6-oz. bottle.

Any patient weighing over 160 lbs. will respond better with 4 c.c. of paraldehyde and 3 ozs. of ether.

A rectal examination should always precede this method.

The day before operation the patient has a laxative and fluid diet. The morning of operation—no breakfast.

Early the morning of operation a simple enema is ordered, followed by two or more tap water enemas, one-half hour apart, until returned clean.

Two hours before operation 1/8 gr. of morphin sulphate in 2 c.c. of chemically pure magnesium sulphate (50% solution) is given intramuscularly and repeated in one hour.

One must be sure by previous test that morphia does not cause nausea in the particular patient in question. If the patient is nauseated, or has not been tried out, it is necessary to use ¼ gr. of codein which also acts synergistically with magnesium sulphate; altho, not as efficiently.

Two hours before operation a 10-gr. chloretone suppository is given. One hour before, with the patient in a left Sims position, the ether-oil mixture, warmed to body temperature, is very slowly injected into the rectum (10 minutes). The anus and surrounding parts should be oiled. The only apparatus needed is a glass funnel connected to a French rubber catheter, No. 20 or 22, inserted about 6 inches into the rectum.

There should be an artery clamp on the tube to control the flow. Dr. McQuillan has the nurse start the injection with a little pure oil and follows the mixture with the same.

Care must be taken that no bubbles enter with the oil. After a few minutes the effect of the ether relieves the patient of the desire to expel the enema, but the tube should be left inserted and clamped for five minutes after injection as a safe-guard. The patient, with cotton in both ears, should be in a quiet room.

One hour after the retention enema is given the patient is ready for local anesthesia. He may be moving his hands and feet about in a restless manner. These should be tied gently to the table, no resistance being encountered. If the patient is talking or moaning, he can be easily quieted by talking with him. The patient will usually answer questions and converse as if in a daze. Orders clearly given —as to movements of the eyeball, etc. —should bring accurate response from the patient.

We have substituted codein for morphin sulphate in about half the cases. In our brief experience it is not nearly as efficient as morphin. When codein is used we increase the paraldehyde and chloretone. For details of the synergistic action of magnesium sulphate with morphin and ether one

has only to refer to Gwathmey's extensive work in this line.

Smythe, in 1923, reported the use of morphin sulphate dissolved in 2 c.c. of a 25% solution of magnesium sulphate as one of the best preliminaries to local anesthesia for general surgery. King, in 1923, recommends a similar preparation for local tonsillectomies.

The amount of evaporation of the ether per minute is a constant. It is controlled by the temperature of the bowel, which is cooled by the evaporation of the ether. This gives an automatic control. This insures an even, regulated ether tension in the blood. This ether tension at the end of an hour is determined by the total amount of ether given in the enema, and the weight and general condition of the patient.

About one-third of the amount of ether used by inhalation is necessary by the rectal route. This ether is also first warmed and moistened by its passage thru the liver and heart before going to the lungs, consequently there is no irritation. This, again, probably accounts for its low toxicity.

The contraindications are colitis and diabetes (unless sugar free).

Our cases were all adults, weighing over 140 lbs., three weighing nearly 200.

One of the male patients weighing 160 lbs. gave an alcoholic history. He was 60 yrs. old and had a mature traumatic cataract, of three months duration, from a blow by a cow's tail while milking. With him we used only 2½ ozs. of ether but doubled the dose of paraldehyde to 6 c.c. He was very talkative just before the operation and answered questions about his injury just as he had told me a month before. Afterwards he remembered nothing about the operation, or the questions asked.

One woman, in answer to my question, said the speculum hurt her lids terribly but at no time made any attempt to squeeze, altho no preventative injection had been given. The operation was a preliminary iridectomy. Later she denied any uncomfortable sensations of any kind. There was complete amnesia for the operation.

To one of the first cases, a woman weighing 185 lbs., we only gave 2½ ozs. of ether, and codein was used in place of morphin sulphate. Altho a very nervous individual, she was perfectly composed and quiet during operation. This one patient did remember the details of the operating room, but said she felt drowsy and very calm, and slept well after it was over. Three ounces of ether would have given a better analgesia. However, if an underdose is given, even this amount has a remarkable sedative effect on the patient.

Altho still in the experimental stage, I believe this method gives an added factor of safety in certain cases of intraocular surgery. This is especially true in those patients whom we have reason to suspect are "bad actors." It produces better cooperation from the patient, with a hypnotic like control by the operator. The patient undergoes less mental anxiety. The operative period merges into one of natural sleep from which the patient awakens refreshed, usually with no remembrance of the operation.

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CASE OF OCULAR LEPROSY.

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A woman of 54, born in Russia, living in the United States 27 years, noticed first skin lesions five years ago. Diagnosis of leprosy then made, and general extension followed. Right eye, involved 5 years and left 2 years, have grown progressively worse under treatment. Reported from Department of Ophthalmology Long Island College Hospital, before the Brooklyn Ophthalmological Society, December 16, 1926.

Leprosy has been written about since the year 1400 B.C. It was probably introduced into Europe from Africa, as Africa is still the most affected part of the world. It in time spread to North and South America from explorers and settlers from the old world. Few countries of the world are without any cases and statistics show that there are over 1,000,000 cases in China, over 100,000 in India, 5000 in the Philippines, and about 1000 in the United States.

The incubation period may range from 2 to 20 years, depending on the statistics of the individual observer, the age of the individuals, the climate that they live in, and their association and contact with lepers.

The disease is spread from lepra bacillus, discovered by Hansen in 1871-74, in the nasal secretion and from those released from the breaking down of skin lesions. It is communicated probably by inoculation, thru the corium of the skin and thru the mucous membranes of the nose, throat or pharynx, by some solution of continuity.

It occurs in three general types, (1) of the skin and mucous membranes, (2) of the nerves, (3) a combination of the two.

To have leprosy is bad, but nearly all, if they live long enough, will have eye inflammation in some form or other, due to (a) the direct action of the lepra bacillus, by extension of a skin lesion or to its transmission by blood or lymph stream; (b) and the secondary results to the eyes, caused by eyelid paralysis and anesthesia of the cornea.

Under (a), there is loss of eyelashes and eyebrows; distortion of the eyelids, due to extension of the skin lesion; conjunctival inflammation, the result of extension from the skin, forming jelly like nodules, resembling a phlyctenule or pterygium; corneal inflammation, both superficial and interstitial, nodular in character. These nodules may ulcerate and may be followed by perforation, with resultant prolapse and incarceration of the iris. Nodular iritis and iridocyclitis are the most common of eye complications, which leave deposits on Descemet's membrane, and dense posterior synechia. When nodules occur, it is difficult to prevent destruction of the eye. Scleritis occurs with ectasia and marked pannus formation. It is uncommon for the vitreous, retina or optic nerve to be effected primarily, when other parts of the eye are exempt.

Under (b), xerosis of the cornea, due to paralysis of the nerves supplying the same, and facial paralysis, producing lagophthalmus. Ectropion with distortion of the lacrimal puncta, adds to the discomfort.

Case, Mrs. F. C., age 54 years, born in Russia, married.

No record of any skin disease or similar condition in the family of either parent, or in the patient's own family. Father died at 60 years, and mother at 70 years of age, from unknown causes. The patient had 13 brothers and sisters, but knows the whereabouts of only one brother, who is alive and well. The husband is alive and well. She has had but one child, who died at age of 8 months, from diphtheria.

The patient has lived in the United States for 27 years, in New York City and Philadelphia, coming from the latter place, three years ago, after a residence of four years. The first lesion was a pimple of the left elbow, 5 years ago, noted after recovery from typhoid fever, at which time she was discovered to be a diabetic. At this time she complained of pain and inflammation in the right eye.

A diagnosis of leprosy was made at that time and the skin lesion gradually spread to the entire body.

Two years ago the left eye became inflamed and painful. The vision became less acute, as the eye condition progressed.

She came under my observation in July of 1924, referred to me by Dr. E. A. Gauvain of the Department of Dermatology at The Long Island College Hospital, who was treating her with chaulmoogra oil preparations. She was under observation by the medical clinic for her diabetic condition, with sugar averaging a faint trace to 3%, depending on how well she observed her diet.

Her general physical condition was considered good. Repeated blood and spinal Wassermans have been negative, but to eliminate any doubt she was given a course of intravenous salvarsan, followed by mercury injections, which did not influence the skin or eye condition in any way.

By referring to figure 1, typical nodules, ulcerated areas and fibrous scar tissue will be noted. One year ago, she developed anesthesia of the fingers, with thin parchment like skin over them and sclerosis of the ulnar nerves, so that they feel like pipe stems.

Fig. 1. Ocular leprosy, Rogers' case. Skin lesions.

Biopsy report by Dr. W. W. Hala states "The section consists of what appears to be an encapsulated granuloma. It is composed of a fibrous stroma, densely invaded by cells, among which are observed small lymphocytes, plasmocytes, epithelioid and occasional multinucleated giant cells. Scattered thruout the fibrous reticular stroma and also incorporated

within large phagocytes are acid fast organisms, generally in closely compacted clumps and morphologically resembling the lepra bacillus. The absence of typical tubercle formation and the caseation, differentiates the lesion from a tuberculous process. The histologic picture is one of typical lepra

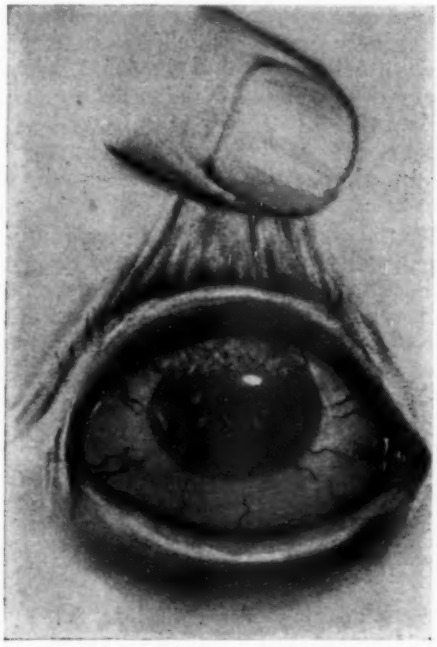

Fig. 2. Right eye, nodules in cornea and iris.

nodule." Examination of the nasal discharge was negative for lepra bacillus. Eyes: The right had a vision of 10/70, unimproved by glasses, the palpebral fissure was about 5 mm. in width, the eyelids were thickened and the edges of the lid margins were distorted. The conjunctiva was thickened and atrophic, resembling the scarring of chronic trachoma. The cornea was studded with fine grey white nodules, both on and in the cornea, the pupil was bound down by numerous synechia, with an "iris bombé," and there were a number of fine nodules in the iris. The tension was 40 mm. with Schiötz tenometer.

The left eye had 1/200 vision, unimprovable. The palpebral fissure was about 4 mm. in width. The lids and conjunctiva were the same as the right eye. There was a slight general glaze to the cornea, with numerous nodules in and on the same. The iris shows dense posterior synechia and "iris bombé." It is studded with grey white nodules, ranging in size from pin point to pin head. The lower 1/6th of the anterior chamber is filled with a mass of these nodules. The tension was 70 mm.

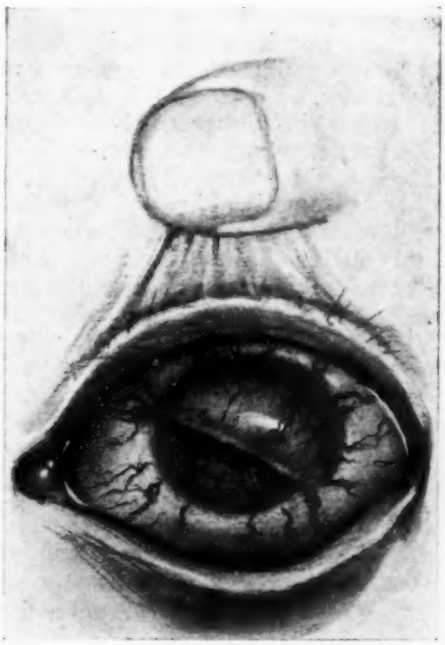

Fig. 3. Left eye, posterior synechiae, iris bombé, new tissue covering upper part of cornea, springs from conjunctiva.

with Schiötz tonometer. On the basis of increased tension and the "iris bombé" a diagnosis of secondary glaucoma was made.

Both eyes were treated with solutions of dionin to relieve the pain and varying strengths of atropin solution, rupturing many of the iris adhesions, with disappearance of the "iris bombé." The tension dropped in each to 20 mm. the conjunctival inflammation subsided, but the vision was entirely lost in the right, remaining unchanged in the left.

Treatment of the general condition with injections of chaulmoogra oils, its esters and similar preparations causes a reaction, which produces a swelling of the leprotic lesions thruout the body. This, in case of eye conditions, especially of the cornea and the iris,

would lead to marked aggravation of the symptoms and perhaps to severe permanent damage (Handbook of Leprosy, 1921, Muir, page 62.) For this reason, eye conditions as a complication of the general infection, make it necessary that small doses be given in treatment and carefully observed to minimize this reaction.

Due to the narrowing of the palpebral fissure and the haze of each cornea, photography of the eyes was unsatisfactory. Photo (B) is a drawing of the eyes, held open to show details.

The right shows the lid conditions as previously stated, dullness of the bulbar conjunctiva, loss of the sharp line of demarcation of the cornea and sclera, due to conjunctival and corneal changes. The cornea is slightly hazy thruout, with small nodules, more marked in the upper part of the cornea, where there is considerable pannus formation. The pupil is oval, fixed by numerous synechiae. The iris has a few small nodules. The scleral vessels are quite prominent.

The left eye shows lid conditions as stated, the bulbar conjunctiva is dull with engorged scleral vessels. The cornea is invaded from above by new tissue, which is developed from a thinning of the sclera at the upper limbus, elevated about 3 mm. at its highest point and is 10 mm. at its greatest width. This new tissue is greyish white and is rich in blood vessels springing from the conjunctiva. Its downward growth is marked by a line extending from 9 o'clock to about 4 o'clock. A part of the irregular pupil, bound down by posterior synechia, can be faintly seen. The lower part of the anterior chamber is filled with a mass of nodules, which reach practically to the lower pupillary edge. There is marked pannus formation about the entire free border of the cornea.

The treatment has been chaumesterol (ethyl ester) 1 to 3 c.c. intramuscularly weekly: of recent months, due to the lack of improvement, it has been given intravenously.

In spite of all the general treatment, the condition of the eyes have grown progressively worse, there has been some further nerve involvement, with the skin condition remaining stationary.

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REFRACTION.

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ST. PAUL, MINN.

Problems of practical refraction, the examination of patients, the measurement of ametropia, observations made in using the ophthalmoscope and other diagnostic methods for the study of refraction cases, the choice of correcting lenses, prescription of glasses and follow-up observations are here considered. Read before the Minnesota Academy of Ophthalmology and Oto-Laryngology, February 11, 1927.

To the average man in our specialty, refraction is the stepping-stone of the young man, the mainstay of the middle aged, and the life buoy of the old man. As a rule, if he is careless and indifferent with this great asset, the young man will get little practice, the middle aged will lose what he has, and the old man will have none to lose. Generally, as it is in all things, one who considers refraction drudgery has never been a good refractionist.

On the other hand, what is more fascinating than the surprise possibilities of the fundus, indicating unsuspected intracranial conditions, constitutional disease, early arterial disease, optic nerve changes, early glaucoma, or even mere irregularities of the normal fundus?

And what gives more satisfaction than proving your retinoscopy, making the near sighted see as he never saw before, giving the mixed astigmatic normal vision, or straightening the eyes of little people without surgery? Little else that we have to do offers such a wealth of opportunity for good

as does expert refraction. Only problems of practical refraction will be considered in this paper. In the matter of equipment there are but few articles that are not universally the same as to pattern and use in all our offices, and only these few need we consider at this time.

The test-type card of reversed letters over the patient's head, with mirror in front, is undoubtedly the arrangement of choice, for not only does it permit economy of space but also the very great advantage of the operator's facing his patient constantly without turning to see what the patient is trying to read, and an artificially illuminated card is preferable to the variation in daylight that we have during our working hours. A very thin mirror is to be desired to get away from the ghost shadow of the letters.

Stevens' phoroptometer, with two rotary prisms and two Maddox rods, *without* the added revolving discs of spheres and cylinders, seems to me the ideal arrangement. The large discs of spheres and cylinders have decided disadvantages that seem to me to outweigh any advantage claimed for them. They obscure the patient's face from the operator, and his face from the patient. The piling up of multiple lenses, with all the accumulated grease and dust and with the added space and distance from the eye, certainly does not lend to accuracy. I prefer to use two sets of long handled lenses, five of 1/2 diopter and five of 1/4 diopter strength, each set consisting of a cross cylinder, a plus sphere, a plus cylinder, a minus cylinder, and a minus sphere, and these can be flipped so rapidly in the above order as to rival the speed claimed for the revolving discs and be free of all the disadvantages above mentioned. The old much pooh-poohed ophthalmometer has its place, and if it were used more routinely so much time would not be used up in recognizing early conical cornea as is frequently the case, and the cylinder of aphakic eyes could be determined by a short cut where retinoscopy in post-operated eyes is sometimes very difficult.

The dark-room light, completely hooded, with an iris diaphragm aperture, seems to me indispensable, and I can not understand how accurate retinoscopy or muscle testing can be done without it. The old style ophthalmoscope, too, for indirect ophthalmoscopy has as much use or more in our offices than the electric ophthalmoscope for direct examination.

A history card, especially compiled for data in refraction cases, lends to thoroness in refraction, and should be rigidly followed thru to its end in all cases, if good habits are to be acquired for life. A thoro and complete examination, if systematically done, takes very little more time than a hit-or-miss one, and is much more conducive to self-respect.

Besides the name of patient, his address, and date of examination, the name and address of the responsible party should be noted, with his relationship to patient. The age, sex, domestic state and occupation, with space to note by whom case is referred, are set down. The history includes: Heredity, previous ailments and present complaint; patient's general health and appearance.

The external findings come next, including inspection (by daylight) of the lids, lacrimal apparatus, conjunctivae of lids and bulb, cornea, sclera, anterior chamber, iris and pupil; the tension, fixation, deviation, excursion of globe and convergence ability; a record of glasses worn, by whom prescribed, and whether with or without cycloplegic; visual acuity (uncorrected) is noted and, roughly, what the patient accepts manifestly; the accommodation near point in centimeters; muscle balance (without correction) at 33 centimeters and at 6 meters and muscle strength.

The dark room examination follows, including (by oblique illumination) the cornea, anterior chamber, iris, pupil and anterior surface of lens; the ophthalmoscope, by indirect method, to see the condition of media, nerve-heads, macula and periphery of fundus and the vessels, followed by use of the electric ophthalmoscope for direct ex-

amination of any details that may be especially indicated.

The ophthalmometer is used routinely, not particularly for measuring corneal astigmatism, but to stumble occasionally onto corneal ectasia, conical cornea or irregular corneal surfaces; and it is surprising to see how much can be overlooked thus far in the examination. If some condition presents itself indicating field investigation, the old dust covered perimeter may be resurrected, and if railroad employment is involved the color sense may be looked into by use of lantern.

By this time it is determined as to the necessity for cycloplegic, and such note is made. In our office over-night cycloplegia is invariably used, and usually the next morning the patient comes in for retinoscopy and try-out.

Where a posttest is required, we usually wait three days after homatropin; and in cases where it is indicated, muscle tests (with correction) are made after that three-day period. Carbon copies of prescriptions for glasses should always be kept, for altercation with careless opticians is very frequent. This working card or chart may seem a most voluminous and lengthy affair, but I assure you it is not, as you may see by these that I have with me; nor is the whole examination tedious or slow.

All that is necessary is to learn your card by heart and you can go quickly thru the examination without making a mark until you have finished; then, when you realize that it is only the irregular findings that you need make note of, you can readily see how little more of it involves than the average time consumed by most of us.

We use this card for every patient that comes into the office, whether it be for refraction or for any other eye condition; also for ear, nose and throat patients. The reverse side gives ample room for additional notes. The case number may be handy in many ways. The diagnosis, too, in the upper corner makes case grouping easy for statistical or case reporting purposes.

The responsible party, his address and relationship to the patient often give very welcome information, later, in the case of children and employes where employers are responsible for the expense incurred; and especially is this true since the passage of the Workman's Compensation Law. The age, sex, domestic state and occupation, too, for obvious reasons, are indispensable. By whom the case is referred proves valuable information at a later date of reference.

The history, including heredity, previous ailments and present complaint, calls for merely what may have a bearing and be essential in that given case. Remember that blurring and headache so commonly skipped over may mean incipient glaucoma, and the present complaint should be most carefully considered. The general health and appearance are things that far too little notice is taken of. In this day and age of specialism the tendency is to lose sight of everything clinical outside of our narrow little block in general medicine.

I am thankful for having had several years of general medicine and surgery. Not a day passes that we do not make use of it in prescribing tonics, giving advice along lines of hygiene, diet, sleep, referring the case for physical examination, urinalysis and blood tests, or to men in other lines where the conditions are unmistakably more in their field than in ours.

No case of refraction should go thru our hands without observation, in daylight, of the external parts of the eye, the orbital position of the globe, the lid margins, cilia, mobility and closure; the puncta and tear sac; the conjunctivae of lids and bulb; the corneal polish, opacities and sensitiveness, the scleral color or injection; the depth of the anterior chamber and contents, if any; the color of the iris, its mobility, markings, adhesions and tremulousness; the pupil, its size, equality, shape, reaction and reflex; the tension, by finger touch; the fixation by cover test for deviation (lateral and vertical); excursion of the globe, whether restricted or unrestricted, and the con-

vergence ability. A record of the glasses worn for distance and near vision, by whom prescribed, whether under cycloplegic or not, is always valuable information in arriving at the why and wherefore of nonrelief and for your starting in where the other fellow left off.

Visual acuity of each naked eye separately, its rough manifest acceptance and accommodation near point should be noted very early in the examination, for some trouble makers have been known to have claimed blindness from the glare of the ophthalmoscope; and while in this day and age they might not get very far with their complaint, yet it is better by far to forestall all such possibilities by following an easy routine. Metamorphopsia very often is first complained of in the visual acuity test, and even tho the patient may have relatively acute vision, a distortion of test-type letters may be your first clue to beginning macular disease.

Muscle balance at 33 centimeters or reading distance is a most valuable part of your examination data. Fifteen or more degrees of exophoria at reading distance for a desk worker, especially if there is no compensatory strength in the adductors, is a serious item to miss. Muscle imbalance at infinity, especially if a vertical imbalance, may be the key to the whole trouble, and may have been overlooked in many former superficial examinations, resulting in disappointment and no relief. Hyperphoria in small amounts is about the only condition where all agree to the efficacy of prism use, and in no place are greater relief and better results obtained than in these cases.

Prisms, base out, in high esophoria very often give most gratifying relief, and unlike prisms, base in, do not make conditions worse rather than better. Muscle strength testing by rotary prisms, first in front of one eye and then before the other, seems to me logical in determining the difference between the muscles of the two eyes, with the one and the other successively stationary and fixed. Altho it may have no bearing in the aggregate team strength, yet it is interesting to record the differences as they are found.

There is a very positive mental element to be kept in mind in muscle testing both as to balance and strength. Some people have a tendency to fuse even the light of the red streak of the Maddox rod with the bare light; while in the strength test with the rotary prisms some patients can be encouraged to hold the fusion of the images, repelling the advent of diplopia, even twice or more the amount of prism displacement that they would without such suggestion influence of the operator.

Among our city population, where the use of our eyes for close work is almost universal, the old accepted ratio of one to three in abduction and adduction has not been our experience. Two to three is the almost constant ratio, and I think it is to be explained by the slow on coming reduction in the amount of hyperopia among the great general average of desk workers and bench workers. Higher hyperopia requires with it more accommodation; and with the latter, the inseparable copartner, convergence. In a like manner to the increase of myopia among the German student body, a change among our hyperopes toward myopia is leading first to less hyperopia and with it less convergence stimulation.

The dark room examination for intrabulbar findings, one of the most fascinating parts of refraction, should begin with oblique illumination or the illumination from a Welch-Allyn ophthalmoscope bulb held within a few millimeters of the cornea. Watching the margin of the illuminated area, one can pick up the smallest details of change in the cornea, anterior chamber, iris, pupil, anterior surface of lens and, in fact, depth of the lens, with the help of the loupe. Three or four Beebe's binocular loupes, lying around at different places in the office, are a convenience hard to get along without, and the advantage of their permitting you to see about the room while wearing them is an outstanding one.

The old style ophthalmoscope for indirect ophthalmoscopy to me is the most useful and indispensable instrument in the dark room. There is not anything that can be done with the direct ophthalmoscope that can not be done with the old ophthalmoscope and an objective lens. Many things, a good example of which we have in examination of a high myopic fundus, can not be done satisfactorily with direct ophthalmoscopy. A thoro master of indirect ophthalmoscopy can get into an eye that can not be gotten into by the direct method; and by running up plus lenses to six, seven or eight and getting close to the patient, details of a high myopic fundus can be studied where such is an impossibility by the direct method. To get the general sense of proportions in a fundus the indirect method is incomparable, and searching the media can not be done so well by any other way. It is especially in the estimation of optic nerve changes and the comparison of shades of pink, gray and white of the nervehead in optic atrophy that the indirect method stands by itself, and men who are in the habit of using this method for such purpose are totally at a loss with the direct method. The French use the indirect method mostly, and the English do so to a large extent. The great pathologist Uhthoff I seldom ever saw use any other method.

I think it is a great mistake for younger men to run exclusively to direct ophthalmoscopy and neglect to develop the older method. Supplementing the examination of the fundus with the direct electric ophthalmoscope for study of details of course is an added advantage, but in that way only. Examination of the vitreous, running the lenses of the ophthalmoscope up and down for the different depth, often brings to view shreds otherwise missed that may mean the developing pathology of proliferating retinitis in a hazy vitreous.

Our study of the nerveheads should be most exacting. The color, margins, elevations, cupping and vessels of the discs should be minutely examined. The amount of noninflammatory glaucoma that is unrecognized in refraction examinations is a tragedy, not to mention the beginning changes in the nerveheads in primary optic atrophy that are slipped over unthought of. Considerable skill is necessary to thoroly inspect the macula thru a small pupil, and early granular changes are easily overlooked that may readily account for lowered acuity of vision. Peripheral changes in the fundus are most frequently to be found along the course of the retinal vessels. Retinal vessels undersized or distended, or alternating thus in sections, give the so-called ampulliform tortuosities of the arteriosclerotic fundus, and generally antedate the later, more easily found, hemorrhages of this disease. In reading the ophthalmometer, it should be remembered that the emmetropic eye shows a small amount of corneal astigmatism with the rule, and that when the mires show but a trifle or nothing at all a cylinder against the rule is sure to be accepted. In high degrees of lenticular astigmatism, in amounts not only enough to offset considerable corneal astigmatism but to give, additionally, comparatively high degrees in the opposite meridian, we have an interesting condition. Doctor Todd, some years ago, showed such a case, and we have had one of the same kind in the office since.

If up to this point anything in the examination indicates a necessity for field taking, that much shirked task should be undertaken in earnest, for it is the patient in the earliest period of failing vision that presents himself for refraction, and it is in this branch of our work more than in any other that fatal pathology is given an opportunity of early recognition. If he gets by you in his first refraction, and the next fellow, and the next several, he might just as well have gone to the optician, for if we fail him in this respect and at this stage we are no better qualified nor of any more value or help to him. Nearly every case of advanced noninflammatory glaucoma and primary optic atrophy has this sad history to relate.

Cycloplegia, preparatory to retinoscopy, is now to be considered, and if I could get you all to try over-night cycloplegia in your young adult refraction cases, you would never give it up. The cycloplegia you get within the customary hour's time is but half cycloplegia, and the cycloplegia you get from a disc is little more than mydriasis. Over-night cycloplegia with homatropin means the full strength cylinders of your retinoscopic reading, not the two-thirds or half quantity you have generally to cut to; and their axes are accepted with no uncertainty, nor different from what your retinoscopy shows them to be, even down to the lower strengths. I have never known a good retinoscopist to be satisfied with anything less than over-night cycloplegia after he has tried it, and the necessity for atropin in young people, with all its long inconvenience in their school work, is relatively infrequent, to the joy of all concerned. A drop in each eye at supper time, at bed time and at breakfast time, followed by three, four or six at the office, as needed, at five-minute intervals, and by a wait of one-half hour, gives a cycloplegia in these patients as complete as two days' use of atropin, unless it is a case of spasm, when even more than several days of atropin may be necessary for relief.

Retinoscopy is unsatisfactory to the poor retinoscopist only; and to the man who does not use it, refraction must surely be a drudgery.

Neutralizing shadows by the use of spheres only is crude retinoscopy and does not permit of accurate axis determination. Nor is the practice of working from without the far point inward as good as working from within the far point outward. To accustom oneself always to work from within the far point outward to the point of reversal lends toward more accurate reading and away from confusion. Even if the patient be myopic, always begin beyond his myopia and, with the shadow moving with you, work toward the plus spheres until the first meridian shadow turns against you. Then add plus cylinders at the proper axis to turn the second meridian shadow against you. In this way you will be striving always toward the least minus sphere or most plus sphere, with the most plus cylinder superimposed; and in determining your exact axis the rocking of your plus cylinder back and forth, in the reverse direction to that apparently required, will, by thinning down the arc, at last balance your astigmatism shadow to the point where the least movement of the cylinder one way or the other throws the shadow to the opposite side, the center of which you know to be the exact axis. Your plus cylinder is then increased a trifle until the shadow remaining is but the shadow of a sphere to be tilted in any meridian by a corresponding change of tilt of your mirror. A very delicate check of your meridians can then be made by moving closer to the patient until shadows of all meridians are moving with you and, slowly drawing backward, constantly tilting your mirror with the axis and against the axis of your cylinder until one meridian changes before the other, you may add to or take from the size of your cylinder to even up the shadows at that distance. A trifle more distance from your patient should thens give you a homogeneous reversed shadow to be flipped equally in any meridian you may try, and you will then have your sphere with cylinder of exact quantity and axis, to be recorded as they read, allowing only for your distance in shadowing. I prefer to shadow at one-half meter and deduct two diopters, at which distance more accurate reading of the shadows is possible.

The work out at the trial case, following retinoscopy, resolves itself into the sum of your experience plus your cleverness, and while each man no doubt has his own line of tricks which to him seem better than the other fellow's, yet two things should be universally accepted as true: First, that Jackson's crossed cylinder is the greatest time saver, and, second, that the minus cylinder is the most delicate test lens you have. The old standard order of procedure should stand in a general

way, but with one or two modifications. Thorington advises, after placing your retinoscopic correction before the eye, the addition of lenses in the following order: plus sphere; minus sphere; plus cylinder parallel, then at right angles; and lastly minus cylinder parallel and then at right angles. I am sure the order can much better and more safely be made as follows: plus sphere; plus cylinder parallel, then at right angles; minus cylinder parallel, then at right angles; and lastly minus sphere. I prefer to use the cross cylinder with and then against, before using any of the others.

As stated above, I have two sets of of five long handled lenses: one set of half diopter lenses and one set of ¼ diopter lenses, and proceed in the following order, using the ½ diopter set first. The cross cylinder is first used as an addition to the present cylinder and deduction from the sphere; then, by turning it over, as a deduction from the cylinder and an addition to the sphere; following the cross cylinder in order by the plus sphere; plus cylinder with, then against; minus cylinder with, then against; and lastly the minus sphere. The rocking of your cylinder is then resorted to until the accuracy of its axis is established. The ¼ diopter set is then called into play in the same order; viz., cross cylinder, with and against; plus sphere; plus cylinder, with and against; minus cylinder, with and against; and lastly the minus sphere.

The interpretation of the patient's answers can be much more subdivided than into just "yes" and "no." A decided "yes" calls for the full addition held before him, and a decided "no" calls for no addition in the direction that you prefer to lead him. But a half-hearted "yes" or a half-hearted "no" can be taken advantage of to the extent of splitting the difference or giving him half of the addition or deduction in the direction you prefer to lead him; especially is this so in the use of the minus cylinder to increase the plus cylinder at right angles to it.

Manifest refraction, safeguarded by the fogging method and especially by the fogged astigmatic chart, may prove a convenient tide-over.

If some question of muscle balance or strength is still on your mind for consideration, the tests can be made again with the new correction before the patient after the cycloplegic is worn off and, too, the accommodation near point of each eye separately should be checked, especially in presbyopes where an addition is to be given for reading. I am sure that most of us take for granted that the accommodation power is the same in both eyes in prescribing reading addition for presbyopes when in fact it frequently is not. I know of several patients who, after accurate correction for distance, require unequal additions for reading, and you will be surprised to see how frequently you may find it if you look for it. This inequality, of course, is to be expected in paresis or partial paresis of accommodation in one eye, but many patients with apparent perfect and equally functioning accommodation will be found to have decidedly different near points with their distance correction on and with equal amount of plus sphere for reading before the two eyes. Doctor Murray had very positive ideas on this matter, and one of the last conversations I had with him was regarding the necessity for being on guard for such cases.

In prescribing glasses I think we all will agree that there is a decided advantage in getting the glasses on the patient before the cycloplegic wears off, and this is a very easy matter in myopes who should receive their cycloplegic correction. But in mixed astigmatism and hyperopic astigmatism it is largely a matter of experience and judgment in cutting the sphere toward the minus, or even into the minus, in order to permit of full acuity of vision and match up with muscle balance requirements. A large plus cylinder, with little or no plus sphere to cut, may require going into the minus spheres for the desired acuity. The time-honored regarding of 0, or zero, as the dead line never to be crossed, is to me ridiculous. Most

men have no hesitancy in cutting the plus spheres as far as may be necessary to clear vision as long as the cut remains on the plus side, but to step over and into the minus spheres they seem afraid. The fact is that the eye, the refraction of which straddles emmetropia, or zero, in the measurements of its meridians, should be indulged in the matter of tone just as readily where it requires going into the minus spheres as it is indulged in the cutting of spheres where all meridians are of plus measurement. Angus McNabb, of London, one of the best teachers of refraction that I had, habitually cut a quarter diopter for tone in myopes even where the entire refraction was myopic. I also heard Thorington say that if in the early years of his work he had allowed for tone he would have saved himself much trouble and embarrassment.

Surely the eye that is limp in cycloplegia will be fogged when it recovers its tone if it is held to the refraction strength fitted during cycloplegia, and in case of exophoria and weak adduction it can not fail to be helped by cutting the sphere as much toward or even into myopia as is necessary to stimulate convergence in indulging the call for tone and acuity.

I am convinced that most men habitually correct too fully. In childhood, youth and young adulthood the supple muscles should be active and well exercised, and it is my habit to give them plenty of opportunity to get it. I correct the astigmatism with a full cylinder correction, but I slash the sphere very liberally except in high esophoria and except, too, in very high hyperopes where accommodation has been held more or less in abeyance because clear vision by accommodative effort has been beyond their power. These latter cases will accept and require very close to the static correction.

In prescribing reading additions or reading glasses for presbyopes, long range should be permitted and no stronger glass given than will permit reading at 40, 45 or even 50 centimeters. Many a young man has lost his patient by shortening too much his patient's reading distance. Most patients seldom require, even at 65 to 70 years of age, more than 2¼ addition and practically never more than 2½ addition.

Bifocals, if given merely as a reading glass to start with, will almost always be acceptable to the presbyope when he becomes entirely dependent upon his reading addition.

Your responsibility does not end in any case upon handing the patient the prescription for his glasses. Realize fully that all the painstaking work you may have done in any given case may go for naught if the face fitting of the glass frames by the optician is not of corresponding expert quality. Frames that can not be bent in every part and molded to the patient's face are to be looked upon with disfavor as a general proposition, and we should, with a sigh of relief, welcome the going out of style of the clumsy, clownish, fence-rail like structures, only about two per cent of which do or ever could be made to fit the wearer properly and which up to recently have been so popular.

Careful inspection of the finished glasses upon the face of your patient as to proximity of lenses to the lashes, height of segments and frames and the tilting and centering of lenses, is very important to your success in the verdict of the patient, and a careful check of the lenses by neutralization, and especially the accuracy of the cylinder axes, by one of the convenient neutralization appliances, is the surest guard against his getting someone else's glasses from the busy shop of the optician where all kinds of mistakes are possible and do happen.

In presenting the subject of refraction tonight, I am thoroly conscious that it has, on account of time limit, been but very incompletely covered, and that there is practically nothing in this paper that the man of experience is not entirely familiar with, but if it serves to bring out a liberal discussion of the matter it may do us all some good and I shall be content.

Lowry Building.

NOTES, CASES, INSTRUMENTS

PIGMENTED TUMOR OF THE EYELIDS.

E. W. ARNDT, M.R.C.S. ENG., L.R.C.P.,
LONDON.
KANDY, CEYLON.

P., 50, a female Singhalese, of Gannetenne, Central Province, Ceylon, was admitted into the Eye Institute Hospital, Jan. 15th, 1926, with a pigmented tumor growing from the upper lid of the left eye.

Fig. 1. Pigmented tumor of lids. Mass attached to upper lid hanging on cheek.

Fig. 2. Lids and tumor everted showing melanotic areas.

History. Two years ago the eyelid started to itch and a small, black mass appeared on the margin. The mass gradually became larger but no discomfort or pain was experienced. In June, 1925, she had a slight blow on the part, and a fairly severe hemorrhage from the black growth took place. The patient sought hospital treatment in August, 1925, when the tumor was about the size of a gooseberry. It was cauterized and reduced in size but soon began to grow, increasing rapidly in size and bleeding easily. No pain was felt; only the discomfort of a heavy lump on the lid.

The patient was first seen by me on Jan. 15th, 1926. On admission she appeared well nourished and otherwise healthy. Family history negative. There was a large, black mass of irregular surface, hanging down from the outer part of the upper lid of the left eye and resting on the cheek. The tumor was fairly hard, its periphery very friable, and it bled easily on being handled. It seemed to spring mainly from the edge of the lid, extending about 5 mm. on the cutaneous surface and about 8 mm. on the conjunctival surface, especially outwards and into the upper fornix. Its under surface was craterform, presenting a hard rim around a well marked depression in the center, and from this part bleeding took place on merely touching. The upper lid showed three melanotic spots, distinct from the tumor; and there were four melanotic

areas on the lower lid, one at the outer end of the lower lid, being very well marked and hard to the touch. No bleeding occurred from any of these latter areas. The ocular conjunctiva was free from pigment, the eyeball healthy, and there was no glandular involvement.

On January 24th, 1926, the patient was operated on, the tumor removed with as much tissue, cutaneous and conjunctival, as possible; with the greater part of the melanoma on the outer part of the lower lid. The raw edges were sutured, the lower lid denuded about its center and sutured to the upper lid, so as to cover the eye which was exposed to a great extent by the removal of the tumor.

The patient did well and left the hospital on February 7th, 1926, the union between the two lids being firm. When she was last seen, on March 20th, 1926, her condition was satisfactory. The union between the lids is good and the cornea quite clear. She is able to see thru a small chink between the lids.

Pathologist's report on section sent: "Both specimens show pigmented tissue, but there is no evidence of malignancy." This rather unsatisfactory character of this report may be explained by the fact that the section sent to the pathologist was cut from the periphery, where it is perhaps possible that no malignant changes had occurred. The specimen measured 26x28x20 mm., just after the operation.

INJURY TO CORNEA BY INDELIBLE PENCIL.

EDWARD SZOKOLIK, M.D.

SZOMBATHELY, HUNGARY.

Mr. S. W., reporter, aged 23, consulted me October 12, 1925, and stated that the tip of a copy pencil fell in his left eye sixteen hours before. A practitioner removed a part of it and the patient was sent to an oculist. Feeling no pain he thought the injury was not serious.

Examination revealed in the middle of the left cornea a dark violet colored ulcer, 2 mm. in size, in the center of which the tip of the pencil was embedded. The surroundings of the ulcer, in the extension of a middle-sized pupil, were slightly violet colored. The eyeball showed ciliary injection, the lower conjunctiva slightly violet colored.

After cocain anesthesia the foreign body was easily removed. Then a little cotton wool, firmly wound around the tip of a sound, was dipped into absolute alcohol and the ulcer dabbed with it, several times over a period of fifteen minutes. The eye was atropinized, dressed and a serious prognosis given.

To my surprise next day the picture had fully changed. Ciliary injection subsided, the cornea became clear and only the ulcer in the center of the cornea was slightly violet colored. An uneventful recovery took place and the ulcer healed within 6 days, with a slight macula and vision of 5/7.

The pencil was made of anilin violet methyl dye. Injuries caused by this material are common and many oculists have had experience with them. It is known that anilin possesses a destroying power for the living tissues, especially for the cell nucleus. Most surgeons excise such injured tissues, but, for reasons which are clear, corneal injuries demand other methods.

The medical literature at my disposal publishes several eye injuries caused by anilin. Von Richter describes (Cent. f. p. Augenh., 1919, p. 140) a similar case, in which the patient was seen after 5 hours and was successfully treated with diluted hydrogen peroxid. A foreign body could not be found. In my case a piece of anilin lay for sixteen hours in the cornea. For that reason I was induced to try the dissolving power of alcohol, and I succeeded in removing the anilin without injury to the eye. I explain this chemicophysical virtue by the fact, that the affinity of anilin for alcohol is stronger than its affinity for the tissues. Its dissolving power towards anilin being higher than that of any other applicable drug, the repeated washing gradually dissolved the anilin dye and the eye was saved.

A TYPICAL CASE OF OBSTRUCTION OF CENTRAL RETINAL ARTERY.

J. ROSENBAUM, M.D.

MONTREAL, CANADA.

The interesting features in this case were the absence of a cherry red spot in the macula, and the absence of a history of heart disease.

A. B., aged 17 years, called to see me about 9 o'clock on the morning of September 1st, 1923, complaining of sudden loss of vision of the right eye, coming on while helping to wash his father's car. No previous history of illness of any kind. External appearance of the eye was normal. The pupil was widely dilated and did not react to light, accommodation, convergence, or consensually. The tension was normal.

Ophthalmoscopic examination revealed a white cloudiness of the retina especially marked in the neighborhood of the macula; with the exception of an area between the disc and the macula supplied by a cilioretinal vessel, which looked unchanged and had the appearance of the normal color. Surrounding this area there was a zone of opacity about 1 mm. wide. The vessels were of normal caliber. Vision: fingers at 2 feet—eccentrically.

Physical examination by Dr. R. Hardisty of the Royal Victoria Hospital showed only a slight systolic murmur at the apex. Other findings were negative; that is, x-ray of teeth, sinuses, Wassermann, kidneys, and tuberculin reaction. In the course of a few days the cloudiness was noted to disappear and in the central area numerous fine white exudations made their appearance. The rest of the retina resumed a normal tint. The disc, however, began to show signs of pallor, and the capillaries on it were seen with difficulty. About three months later the disc was definitely atrophic, bluish white in appearance, and the white spot in the macula cleared up. Vision then: 20/200, and it remained so, unchanged for two years. Field of vision showed contraction to about 5°, to the temporal side of the fixation point.

CONCLUSION. In seeking an explanation for the absence of the cherry red spot in the macula, the writer is inclined to believe that the cause was due to the edema and infiltration of the retina; which involved not only the entire rim of the macula, but also encroached on to the entire fovea, preventing, therefore, the contrast of the choroid from being visible.

206 *Bishop Street.*

LATE TRAUMATIC DETACHMENT OF RETINA, PSYCHIC BLINDNESS.

CLARENCE E. IDE, A.B., M.D., F.A.C.S.

TUCSON, ARIZONA.

Mrs. F. L., aged 68, came August 11, 1925, complaining that a fortnight ago, she found, on covering her left eye, that the vision of the right eye was almost nil.

P. H. Ten months ago, on turning suddenly, the right frontotemporal region came violently in contact with the edge of a door. Ecchymosis over frontal, temporal and malar regions and swelling of the lids resulted. Attendance at "movies" has fatigued eyes, headache and insomnia resulting.

Examination: V. R. 1/50; L. 6/15. Ophthalmoscope (with euphthalmin mydriasis) shows right lens somewhat opacified, equatorial spicules coming in from the periphery; nervehead shows decided physiologic excavation. Upward and outward there is a detachment of the retina, sagging over the macula. Treated by rest in bed, subconjunctival injection of Hg. $Cn._2$, with dionin and novocain; free drinking of water, bland diet.

8, 17, V. R. 4/50; L. 6/6. The ophthalmoscope shows the lens clearer, the general opacity being less, which renders the dense areas of opacity better defined. The field of vision is restricted below, from the blind spot downward and outward to the periphery, also from 10 degrees below the macula downward and inward to the periphery, there being a clear area between the two scotomas (Stereocampimeter).

8, 22. Ophthalmoscope shows the retina settled back against the choroid. There are three small pigmented areas at the seat of the detachment, with fainter pigmentation surrounding them. Also four small white areas of degeneration. Subconjunctival injection repeated.

8, 27. Lens clearing. V. 4½/50. Subconjunctival injection Na. Cl. with dionin. V. = 6/70 on illuminated cabinet. 0.1 Landolt chart. Retinoscopy resulted in this prescription at final test: R. + 0.37 with + 1. at 120° = 2/10; L. + 0.25 with + .50 at 165° = 6/6.

9, 12. Same appearance with ophthalmoscope.

9, 17. V. R. 0.2 Landolt chart with glasses. Subconjunctival injection Na. Cl. with dionin. Lens clear enough to permit good view of fundus. Spicules of opacity of lens, barely visible with plus 20 in aperture. Faint posterior opacity seen with ophthalmoscope at a distance. Subconjunctival injection of Na. Cl. with dionin.

10, 13. V. R. 0.15 Landolt at 5 meters. Fundus appears as before. After making this much improvement the patient began to complain that she could see practically nothing. Examination revealed no changes. A consultant could find no change. The conclusion reached, therefore, was that mental depression resulting from fear of loss of vision had brought about that condition which we know as psychic blindness. The lens had cleared decidedly, there were no new areas of pigmentation or of degeneration.

Physicians' Bldg.

SOCIETY PROCEEDINGS

ROYAL SOCIETY OF MEDICINE, LONDON.

Section of Ophthalmology.

March 11, 1927.

MR. ERNEST CLARKE, Presiding.

Exophthalmic Goitre with External Ocular Paresis.

MR. R. FOSTER MOORE exhibited a woman with exophthalmic goitre and paresis of external ocular muscles. He saw the patient five years ago, at which time she had exophthalmic goitre of severe degree. Part of the thyroid gland was removed. At that time she had very definite proptosis and most of the ocular muscles were paralysed, except the internal branches. Seen now, there was still ocular palsy, and in reading she had to move her head from side to side so as to follow the lines. He regarded it as a muscular condition. Her general health was not much better.

Chronic Ophthalmoplegia and Ptosis.

MISS ROSA FORD showed a girl, aged 17, who, except for this condition, seemed quite healthy. The first sign of anything being amiss dated seven years back, when, on looking at anything she closed one eye with her hand, due, no doubt, to diplopia, which was still present. She felt so little inconvenience that advice was not sought until four years later, the occasion being her rejection on an application to enter the Civil Service. Now, there was partial ptosis, and almost complete ophthalmoplegia in both eyes. The right eye was the more prominent, the left being a little divergent. In the right eye the vision was 6/6, in the left 6/9 partly. The fundi looked normal except for some pallor at the outer halves, and there was slight cupping—probably physiologic—of the outer half of the right disc. Pupil reaction to accommodation on both sides was sluggish. She was able to do her work, that of typing, without difficulty. Some 47 cases of the kind had now been collected from the literature, but no cause for the condition had yet been assigned. Messrs McMullen and Hine, in their paper on the subject, seemed to incline to the view that it owned a nuclear origin, believing that there existed a congenital weakness of nerve centers leading to premature decay.

Discussion. MR. LINDSAY REA spoke of a case of his own in which the movements were limited only when the patient turned her eyes to the left; when looking in front of her the muscle balance appeared to be normal. That seemed to point to a nuclear, not a muscular, origin. His patient said the deficient movement of that eye occurred before there was any sign of exophthalmic goitre coming on.

Bilateral Keratoiridocyclitis.

MR. DAVENPORT showed this as what he hoped was the end result of a very severe inflammation of the anterior part of the eye. The patient was a girl whose appearance made one suspicious of tuberculosis, but, tho the signs at her apex seemed to confirm this idea, she was not considered at Brompton Hospital to be certainly tuberculous. When first seen she had intense inflammation of the lower half of the cornea, there was much k.p. and the irides were studded with nodules. After a residence in the country the condition largely subsided, the k.p. had disappeared, and there remained an interstitial nodule in each cornea, and dotted spots in each iris.

Mr. Davenport also showed a case of degenerative changes in the cornea, in a glycosuric patient.

Buphthalmos in a Boy.

MR. SCOTT showed a boy with buphthalmos. His mother said the left eye had always been large, and that the left pupil seemed larger than the right. When the boy was first seen, three weeks ago, the tension in that eye was raised, and there was pulsation of the retinal arteries to be seen, on and near the disc. Now, the tension was not raised, and no pulsation of arteries was apparent.

Discussion. MR. M. S. MAYOU said this was an unusual case, as it was rare for buphthalmos to be unilateral. When it occurred unilaterally it was usually associated with neurofibromatosis on the same side. This boy's face was not quite normal, for it was somewhat thickened over the jaw, and the fold of the top lid was obliterated. He believed there was some proptosis on the affected side. The buphthalmos in this case, therefore, he regarded as a mild form of neurofibromatosis.

Macular Choroidoretinitis.

MR. SCOTT showed a case of left macular choroidoretinitis in a woman. The patient said the sight of her affected eye was normal until she was 19 years of age, and now she had a large pigmented scar in the macular region, while in the forward part of the vitreous was what he took to be an infiltration of the canal of Cloquet. It was of inflammatory nature, a so-called macular coloboma.

Facial Cleft, Harelip, and Ectropion.

MR. ACKROYD showed a patient who presented this combination of defects, and various suggestions for operative procedures were discussed.

The Pectin in an Owl.

THE PRESIDENT brought an owl, the pet of his daughter, in order to demonstrate to members the pectin, which took the place of retinal vessels in the bird, and supplied nourishment to the retina. He understood that the theory that the pectin was used for accommodative purposes was no longer largely held. It was believed by Miss Mann and others who had written on the subject that the pectin gave to the bird a more acute vision than it would have if it possessed retinal vessels, as the pectin came off from the optic nerve and did not obstruct the line of vision.

Other cases were shown.

H. DICKINSON,
Recorder.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY.

January 18, 1927.

E. K. ELLIS, M.D., President.

Traumatic Aniridia.

DR. BENJAMIN SACHS presented a case of traumatic aniridia. A 40 year old woman was thrown thru a windshield. The right eye showed a corneal perforation beginning at the limbus at 3 and running horizontally across to 9 o'clock. Much blood in an-

terior chamber precluded a view of the pupil. The lens was injured and part of it stuck thru the corneal wound. Projection was faulty. There was gradual absorption of the lens. There is a clear space above the corneal scar thru which the fundus can be seen clearly. The interesting point is that there remains no evidence of the iris even when examination is made with the slit lamp. Tension has remained normal since accident and vision now is 20/30 with proper correction.

Tubercular Choroiditis.

DR. MAUD CARVILL presented three cases from the tubercular class which showed lesions of choroid. Two showed an active process and one healed.

Unusual Fundus Condition.

DR. MAUD CARVILL presented a patient, male, aged 21, who was first seen Feb. 15, 1926. Family history and personal history were negative. Fundi were negative except for unusual appearance of the discs. These seem to be overlaid with what looks to be a hyaline deposit over which the retinal vessels course. The condition is more marked in the right eye in which not only the disc is covered by this glistening, whitish, waxy deposit which looks to be in layers simulating the arrangement of fish scales, but it extends beyond the disc at the sides and about a disc diameter above and below, and for a slight distance follows the inferior nasal vessels. In the left eye, the involvement is not as extensive but is similar in type, extending only slightly beyond the disc margin. Vision O. D. = 20/20. Vision O. S. = 20/20. In each eye the fields are concentrically contracted and the blind spots enlarged.

Jan. 15, 1927, one year later, condition had not changed. Vision, fields and blind spots were the same.

Discussion. DR. ALLEN GREENWOOD said he saw this case in consultation with Dr. Carvill when the patient first came to her office and urged her to show it to the Society members because in his experience it was quite unique in the unusual extent of the hyaline or so called colloid bodies described by Fuchs.

Epidermoid Carcinoma with Plastic Operation.

DR. L. W. JESSAMAN presented a case of carcinoma involving the left eyebrow, temporal region and eyelid. Six years ago a small growth developed in the left eyebrow. It increased in size. Radium needles were used but the growth continued to extend, involving the upper eyelid. Operation was advised.

In June, 1926, the patient developed erysipelas. There was a good recovery. The growth was removed by electrocoagulation. The patient was seen again Oct. 1, 1926. At this time there was a denuded area extending from near the middle of the forehead outward well into the temporal region and destroying a large part of the upper lid so that the eye was constantly exposed. Nov. 5, 1926, electrocoagulation employing the monopolar method was used. The active growth was removed with the endotherm knife. Nov. 30, 1926, skin graft was done and a very large area covered by a sliding graft sutured over the exposed area not including the eyelid. Dec. 27, 1926 a skin graft was taken from the right upper eyelid and transplanted on the left eyelid. It is interesting to note that the patient does not have any difficulty in closing the right eye from which the graft was taken. The left eyelid can almost close.

Discussion. DR. JESSAMAN questions whether the long use of radium had any effect in controlling the lesion or whether it served to stimulate its growth.

DR. ALLEN GREENWOOD asked whether the erysipelas may have had any effect in decreasing the activity of the growth.

Improved Retinoscope.

DR. F. S. THORNE gave a plan to improve the retinoscope so as to facilitate cleaning. In the regular instrument the posterior surface of the mirror is somewhat below the posterior surface of the metal back, so that cleaning is difficult. In his retinoscope

a small piece of glass is cemented to the posterior surface of the mirror of such a diameter as to completely fill the hole in the metal back (enlarged to 7mm.) and of such a thickness as to perfectly flush with the posterior surface of the metal back.

Discussion. Dr. Allen Greenwood suggested that the glass have a value of one diopter in an instrument to be used by a presbyope.

Subconjunctival Extraction of Cataract.

Dr. Joseph L. Dowling of Providence, R. I., reported the technic of a large conjunctival pocket flap with suture after the method of Husian and his satisfaction in a series of over two hundred capsulotomy extractions. In intracapsular extractions he continues to use the original Verhoeff scleroconjunctival suture. In cataract operating the "safety first" principle was emphasized and the use of a conjunctival flap with suture was urged. In brief the advantages of the flap and suture were noted as rapid healing, with quick reestablishment of the anterior chamber, small liklihood of any postoperative complications and early activity of patient with short hospital convalescence. The only disadvantages raised were the occasional subconjunctival hemorrhage and the extra time required to make the flap, both of which Dr. Dowling considered negligible factors.

Discussion. Dr. E. K. Ellis stated that he had done about fifty of these operations and had found them very satisfactory.

Dr. Allen Greenwood spoke of the operation first being done by Shanker and that he himself had done it several times but suggested that a broad keratome be used for the corneal section, as reported in 1924 by Lambert, so that but a small amount of cutting will be necessary with the scissors as the scissors snips tend to cause striped keratitis.

Dr. J. F. Hawkins said he uses this method of operating on all his cataract cases and that he attempted to eliminate the scissors snips by using a broad keratome as Lambert suggested, but found it impossible to satisfactorily complete the section with a broad keratome as the cutting edge was too blunt.

Dr. L. W. Jessaman stated that patients at times were annoyed by the removal of the stitches and advised using a sharp curved scissors with which to both pick up and cut the suture. In this way the patient does not feel it at all.

Dr. F. H. Verhoeff said that he had done a somewhat similar operation in the days when he was trying out all methods of conjunctival flaps and he thought it was a good method but not as adaptable as his own method.

Colonic Analgesia in Ophthalmic Surgery.

Dr. Howard F. Hill read a paper on this subject, published on p. 500 of this Journal.

W. Holbrook Lowell,
Recorder.

MEMPHIS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Section of Ophthalmology.

March 8, 1927.

Dr. E. D. Watkins, Presiding.

Glaucoma Simplex.

Dr. P. M. Lewis presented W. B., colored, aged 57, who was seen in the clinic of the Eye and Ear Hospital on Feb. 1, 1927. He complained of a dull pain in both eyes, which started each morning and lasted about two hours. His sight had been gradually failing for the past two or three years.

Examination: Vision O. D. light perception. O. S. 20/40. Eyes not congested. Pupils moderately dilated but reacted normally. Incipient cortical cataract O. D. Tension O. D. 45, O. S. 55 (Gradle-Schiötz). Both optic nerves were markedly atrophied and had a moderate glaucomatous excavation. Retinal atrophy was also marked. The fields were contracted nasally.

On Feb. 8, 1927, both eyes were operated upon. Iridectomy under a conjunctival flap was made on the right

eye and a trephine on the left. There were no postoperative complications and the patient went home on the third day. The tension was normal and the vision the same as before operation.

Discussion. DR. STANFORD said that in selected cases iridectomy was more satisfactory than any other operation for glaucoma.

DR. SELIGSTEIN asked what the guide was to determine what operation was to be done.

DR. STANFORD said that if the periphery of the iris be adherent iridectomy would do no good.

Glaucoma.

DRS. E. C. ELLETT and R. O. RYCHENER presented Mrs. P. B., aged 52, white, housewife, who had been a patient of Dr. E. C. Ellett since Apr. 18, 1923, complaining at that time of black spots floating before the eyes. She had always been highly myopic and had worn glasses since school age. There had never been any pain or inflammation in her eyes but she had had transient attack of blurring vision some nine months before, just previous to an extensive abdominal and pelvic operation. Refraction was V. O. D. 10/200 improved with —5. S. to 20/20; V. O. S. 8/200 improved with — 4.50 S. to 20/20. An addition of + 2.50 S. gave a vision of Jaeger 1 at 35 cm. in each eye. Ophthalmoscopy showed a few fine equatorial lens dots and few if any floating vitreous opacities. The fundi were normal. Pupils were active and tension was normal to fingers. Suitable lenses were prescribed.

Nov. 27, 1925, she returned stating that for some months previously she had been under miotics for an increased tension in each eye. Refraction was: V. O. D. 10/200 improved with — 5.50 S. — .50 Cy. Ax. 135° to 20/20 — 2. V. O. S. 10/200 improved with — 6.00 S. to 20/20 — 1. She read Jaeger 1 with each eye without glasses. Ophthalmoscopy showed no changes other than those noted at the examination two years previously. Visual fields were normal. Tension with Schiötz tonometer was 50 in each eye. Pupils were 4 mm. in diameter, equal and active.

She stated that she saw no halo about lights but was subject two and four times daily to attacks of blurring or glimmering of vision. Eserin was prescribed. November 28, the following day, tension O. U. was 45 with the Schiötz tonometer. Jan. 19, 1926, vision, refraction and tension were the same as at the last visit. Feb. 15, 1926, vision and refraction were the same. Tension with the Schiötz tonometer was O. D. 60, O. S. 70. Ophthalmoscopy was normal and visual fields were normal. She was given a prescription for pilocarpin ½%. April 18, a general examination by Dr. Cheney disclosed a mild hypertrophic arthritis, chronically infected tonsils, dental repairs and perineal lacerations. Refraction was: V. O. D. 20/200 improved with — 4.50 S. — 1.00 Cy. Ax. 165° to 20/20. V. O. S. 20/200 improved with — 5.00 S. to 20/20. Tension, Schiötz, was O. D. 30, O. S. 45.

July 16, 1926, she had had three abscessed teeth removed. Vision, refraction and visual fields were unchanged. Tension, Schiötz, was O. D. 50, O. S. 33. Ophthalmoscopy was normal. Pupils were 4 mm. in diameter, equal and active. The irides were tremulous.

Oct. 26, 1926, she stated that she had experienced several spells of blurred vision during previous two weeks, lasting as long as two hours. She had been using eserin ¼% prescribed by a consultant in Cincinnati. V. O. D. 10/200 with — 4.25 S. — 1.50 Cy. Ax. 180° equals 20/20. V. O. S. 10/200 with — 4.50 S. — 1.50 Cy. Ax. 180° equals 20/20. Tension, Schiötz, was O. D. 70, O. S. 56. Iridodonesis was present in both eyes and more apparent when patient was recumbent. Ophthalmoscopy showed optic cups to be large, involving nearly the entire nervehead; there was suggestion of undermining of the borders and the veins were considerably engorged and tortuous. Seen again four days later, refraction was the same; while tension, Schiötz, was O. D. 65, O. S. 56, operation on both eyes was advised, the right to be done first. The patient

could not bring herself to consent to operation. Nov. 13, 1926, she returned stating that she had experienced two recent blurring attacks. She had been using during this interval a 1% solution of pilocarpin. Vision and refraction were the same as previously. Tension Schiötz, was O. D. 55, O. S. 47.

Jan. 11, 1927, vision and refraction were the same. Visual fields were normal. Tension, Schiötz, was O. D. 50, O. S. 45. She was to have some more bad teeth extracted, and was again advised to have her eyes operated on because of the danger of an acute exacerbation of her condition. This was again refused.

Feb. 17, 1927, vision and refraction were the same. Tension, Schiötz, was O. U. 50. This time operation was agreed upon but the patient wished to delay same a little longer. During the interval of her next visit we were able to obtain the new German preparation known as glaucosan (Hamburger) for use in glaucoma simplex.

March 6, 1927, she returned again. At this time she stated that she had had several severe attacks of blurring during the past two weeks, which seemed to be associated with a nervous type of gastrointestinal upset. Refraction was: V. O. D. 10/200 with — 4.25 S. — 1.25 Cy. Ax. 180° equals 20/20. V. O. S. 10/200 with — 4.25 S. — 1.25 Cy. Ax. 165° equals 20/20. Tension, Schiötz, was O. D. 50, O. S. 35. March 7, tension, Schiötz, was O. D. 60, O. S. 50. Glaucosan drops were administered after the technic of Hamburger. After the fifth administration the tension, Schiötz, was O. U. 23, and two hours later was O. D. 18, O. S. 16.

Following the initial administration most of the cardinal signs of which Hamburger speaks in his article. "Treatment of Glaucoma with Glaucosan, Glaucosan Drops and Amine-Glaucosan Drops" (Arch. of Ophth. Nov. 1926) were noticed, namely: (1) The eyes became marble white; (2) the palpebral fissures widened; (3) the pupils dilated fully, concentrically and almost immediately. There was no sharply demarcated pallor of the lower lids but there was some general paling of the face. The eyes softened noticeably to fingers after the fifth administration. The pulse rate increased from 88 at the start to 98 at the height of the administration. After two hours it had dropped to 85. The blood pressure was not watched, except grossly thru the pulse. No change was noted. Refraction following was: O. D. — 4.25 S. — 1.25 Cy. Ax. 180° equals 20/30; O. S. — 4. 25 S. — 1.25 Cy. Ax. 180° equals 20/30. A thin, chalky deposit was noticed on the cornea, which probably accounted for this loss in acuity. Hamburger mentions this as taking place consistently but disappearing after a few hours. Ophthalmoscopy was easy with the dilated pupils and showed the beginning cupping of the disc. The veins still seemed considerably engorged. No hemorrhage or evidence of vascular disturbance from the rapid change in intraocular tension were seen.

March 8, at 8 A. M., there appeared to be a faint ciliary injection associated with a watery injection of the ocular conjunctiva. She complained of a feeling of fullness in the globes and pain in the frontal region. Ophthalmoscopy was the same as on the previous day. Tension, Schiötz, was O. D. 16, O. S. 14. Pupils had come down to a diameter of three to four mm. At 4 P. M., ciliary injection was still present but no more marked than before. Pupils were the same as in the morning and freely active. Ophthalmoscopy was unchanged. Tension, Schiötz, was O. U. 17. Refraction was O. D. — 4.25 S. = — 1.25 Cy. Ax. 180° equals 20/20. O. S. — 4.25 S. — 1.25 Cy. Ax. 165° equals 20/20. The glistening corneal haze noticed the day before had disappeared.

Discussion. Dr. Stanford asked to have more information on glaucosan.

Dr. Rychener said that all details were described by Dr. Hamburger in the Archives of Ophthalmology for November, 1926.

Diplopia Following Frontal Sinus Operation.

Dr. P. M. Lewis presented J. E. G., aged 22, who was first seen on Nov. 4, 1926, complaining of severe pain in the left frontal sinus region for the past two weeks. Examination revealed marked high deflection of septum to

left, extreme tenderness under floor of left frontal region and cloudiness on transillumination. Shrinkage and suction gave a large amount of pus. The condition would not clear up by this treatment so on Nov. 30, 1926, a submucous resection and middle left turbinectomy were performed. Some improvement followed temporarily, but there was still a large amount of pus from the frontal. During January he suffered severe headaches and was very tender over and beneath the frontal sinus. Roentgen ray showed the left frontal and ethmoids very cloudy.

On Jan. 28, 1927, a Lynch frontal operation was performed and the ethmoids and sphenoids exenterated. The frontal contained pus under considerable pressure, the living membrane was very thick and necrotic and the ethmoids were also bady diseased. The patient did well and left the hospital on the fifth day. His only complaint was double vision. He turned his head far to the right to avoid diplopia. Tangent screen plotting showed that the diplopia was absent when the eyes were turned left, up and left and down and left but was present in all other fields. It increased markedly with eyes down and to the right, i. e., in the field of action of the superior oblique. A 3° prism base down at 75° over the left eye corrected the diplopia.

This man was a taxicab driver and he was totally disabled by the diplopia. As the condition showed no signs of improving after about 3 weeks he was prescribed glasses O. D. + .37 cyl. ax. 105° combined with 1° prism base up at 105°; O. S. 2° prism base down at 75°. With these glasses he had binocular single vision in all fields and felt perfectly comfortable.

Discussion. Dr. Robin Harris thought it an old case with acute exacerbation.

Dr. Simpson said that some diplopia was to be expected in these cases. He asked what sutures were placed and where.

Dr. Lewis said that he did not place a deep suture. He did not see why all these patients did not have diplopia.

M. B. Seligstein,
Secretary.

ST. LOUIS OPHTHALMIC SOCIETY.

March 25, 1927.

Dr. John Green, President.

Occlusion of the Pupil.

Dr. John Green read a paper on this subject. It will be published in full in the Journal.

Discussion. Dr. A. E. Ewing asked how much adrenalin was used each time and also whether it was injected beneath the conjunctiva only or into the capsule of Tenon.

Dr. M. Jacobs said that a recent publication regarding the use of adrenalin by an observer who kept accurate data in a series of cases seemed to point rather definitely to the contrary of the contention that adrenalin is of marked value in the reduction of tension in glaucoma. The question arose in Dr. Jacobs' mind whether the adrenalin was acting here on a secondary glaucoma or whether, since the patient was a negro (and glaucoma is quite prevalent among negroes), Dr. Green was dealing with an individual of the glaucomatous type regardless of the secondary phase of glaucoma. In other words, was this individual of the low grade glaucoma or preglaucoma type or was the glaucoma due solely to iritis? Dr. Jacobs made these comments in view of the report of this recent observation which said that adrenalin is apparently of no value in secondary glaucoma; but that it may be of value in primary glaucoma. He had used it in only two cases, one of them an acute attack; and he believed the adrenalin hastened the advance to the operating table. In the other case adrenalin had been used a number of times. The patient was operated on for glaucoma; and again for cataract. He had had a trephine operation and other treatment. Finally in desperation, after running the gamut of most things surgical, Dr. Jacobs did a horsehair implantation in both eyes and he was sorry to say, with no good result. Adrenalin was then used but with no appreciable effect.

Dr. W. E. Shahan asked Dr. Green how long the tension stayed down in his cases and also if the adrenalin was

used alone or in conjunction with cocain. Dr. Lawrence Post and he had had occasion to study about forty human eyes affected with glaucoma simplex or absolute glaucoma in this connection. It was their observation that cocain alone reduced the tension slightly, that adrenalin alone or in conjunction with holocain raised it slightly, but that cocain and adrenalin combined caused a very large drop in tension. Often the drop would be from 50 to 55 mm. Hg. (Schiötz) to below 20 within 20 to 30 minutes. Within an hour there would be a sharp rebound in which the tension would rise slightly above the initial tension. Then followed a long period of hypo- or normal tension. This period of low tension following cocain adrenalin anesthesia appeared to them to be the best time for operation. It was their impression that it took the combined action of cocain and adrenalin to produce the great fall in tension.

Dr. Green in closing said that Dr. Shahan had asked how long the tension remained down following the injection of adrenalin. The initial fall always occurred within an hour and it was at least 10 mm. As a rule the tension did not rise to its original state for about a week. In spacing the time of injections, Dr. Green was guided partly by the tension and partly by pain. For an hour following the injection of adrenalin there was quite severe pain. It was subdued to some extent by hot packs. Prior to injection one or two drops of cocain were dropped into the conjunctival sac. He had used six minims of the sterilized ampoule of adrenalin hydrochlorid (1/1000) put up by Park, Davis & Co. The injection was made subconjunctivally. During the course of the severe iritis a weak atropin solution (1/5 of one per cent) was used several times a day. With the subsidence of the iritis, tension gradually came down and finally reached 31.

In reply to Dr. Jacobs, the glaucoma was secondary when the patient was first seen. The reduction in tension and subsidence of the iritis following the transfixion operation was gratifying. It is conceivable that the eye prior to the development of secondary glaucoma had a tension higher than normal. Dr. Green stated that his experience with subconjunctival injections of adrenalin in glaucoma is limited. He had used it once in a case of acute glaucoma prior to operation. When he saw the patient in the morning tension was 72 mm., at the time of operation in the afternoon it had dropped to 54 mm. It is not likely that the eserin which was repeatedly used had any influence in reducing tension, as the pupil remained widely dilated.

Cataract Extraction in High Grade Keratoconus.

Dr. John Green reported the case of Mrs. D.S.R., aged 66, who was first examined Oct. 24, 1926. Vision had always been defective. She had been given glasses in childhood but even with them had difficulty in distant and near vision. Vision had been failing in the right eye for six years; in the left for two years. Glasses prescribed by an optician did not help. (They are R. — 3.50 sph.; L. — 5.00 sph. — 3.00 cx. 145°.) A diagnosis of cataract was made by an oculist in 1922. In the right eye there was a high degree of keratoconus with opacification of the apex of the cone and nearly mature cataract. Left eye, keratoconus of moderate degree, immature cataract.

The patient was moderately obese and became dyspneic on exertion. A year ago she had bronchitis and asthma. The tonsils contained plugs but no pus could be expressed. The five remaining teeth showed pyorrhea. There was moderate rectocele and cystocele. Urinalysis was negative. Blood pressure was 144/96. Preliminary iridectomy under a small flap was performed Nov. 6, 1926. Recovery was uneventful. The extraction was performed Jan. 3, 1927, under cocain anesthesia and novocain akinesia. A large preformed trapezoidal flap was fashioned and a Verhoeff stitch inserted. The section and extraction were without incident (capsule forceps used). The flap was held in position by the loosely tied suture and the anterior chamber freed of a little blood and cortex by irrigation. After tying the suture the angles were replaced. There was no loss of vitreous.

A mild iritis from the sixth to the twelfth postoperative day was easily controlled by atropin and salicylates. With the high degree of corneal conicity Dr. Green did not look for a very good visual result and was therefore agreeably surprised to secure vision of 6/20. In working out the correction he found a stenopaic slit of the greatest assistance. The final correction was — 4.00 cx. 65⌒+15.00cx. 155°.

Discussion. Dr. M. Jacobs asked whether the patient had much difficulty in getting accustomed to the glasses.

Dr. Green answered that the patient was much pleased with the improvement in vision and did not complain of distortion of objects.

Inclusion Conjunctivitis.

Dr. N. R. Donnell in presenting this subject for discussion said that he fully realized that much could be said, of which little has been proved but that he was doing so with the hope of calling attention to a group of cases the correct classification of which is not easy, especially from a clinical standpoint.

Fuchs describes inclusion conjunctivitis as a condition resembling trachoma marked both by follicles in the retrotarsal folds and by a granular appearance of the tarsal conjunctiva and characterized by the presence of cell inclusions. It runs a moderately severe course, is but little affected by treatment and lasts from two to four months, then when it subsides it leaves the conjunctiva completely normal. This distinguishes it from trachoma which it externally resembles.

From this it would seem that Fuchs makes a distinction between trachoma and inclusion conjunctivitis. Oguchi also says that acute trachoma must be differentiated from acute follicular conjunctivitis, gonoblennorrhea, inclusion blennorrhea and swimming pool conjunctivitis. Lindner from his studies of the subject has advanced the theory that trachoma had its origin from an inclusion virus growing upon the genital mucosa. He thinks there is a separate clinical type of inclusion blennorrhea of adults which clinically may be impossible to differentiate from trachoma.

With this brief reference to the literature on the subject of inclusion conjunctivitis, Dr. Donnell reported the following case, which to his mind seems to fit more nearly in this class than any other.

Mr. J.C., aged 30, salesman, applied for treatment on Aug. 12, 1926, with the following history: Two weeks previous to the above date he developed an acute inflammatory condition of the right eye; being on the road he sought no advice, but the inflammation subsided in a few days without any treatment. A week later the left eye became involved in a like manner and since it did not clear up as the previous eye had done he applied for treatment. He had vision in both eyes of 20/20. The corneae of both eyes were clear. Ophthalmoscopic examination of both eyes was negative. The eyelids of the right eye gave evidence of a low grade catarrhal conjunctivitis. The conjunctiva of the left eye was much thickened in the upper and lower retrotarsal folds and there was a great deal of secretion and there were many follicles. This condition was treated over a period of two weeks with the usual treatment with zinc sulphate and Jamieson's ointment. At this time the left eye again became acutely inflamed giving somewhat the appearance of vernal catarrh. An inquiry as to his habits disclosed that his business called him on occasional trips to the country and acute exacerbation followed these trips. The influence of pollen irritation was at once suggested but after observation this had to be abandoned. Then the influence of diet was suggested, the patient noting acute exacerbation after eating fish; this likewise had to be discarded. In the meantime the patient had the tonsils, sinuses and teeth examined with general physical examination and Wassermann all of which were negative. At the suggestion of his general doctor he changed his place of living, with no result. During this time the eye condition was changing until the lids became granular in appearance, cornea infiltrated and some pannus appeared; in all giving the clinical pic-

ture of trachoma. The vision at this time went gradually down to 20/100. The patient was seen by Dr. Donnell's associates, Drs. Lamb and Woodruff. He was asked to get an opinion of a man of his own choosing. Accordingly on Feb. 15, 1927, he was seen by Dr. John Green. The patient at this time seemed to be getting better under mild treatment or none at all. Accordingly, all treatment was discontinued, from which time the eye showed continued improvement until now he has a vision of 20/20 in either eye; follicles are all gone from the lids and only a faint trace of infiltrate is left in the cornea with a few vessels.

Discussion. Dr. John Green said that thru the courtesy of Dr. Donnell he was permitted to see this patient early in February. The right eye was solely involved. That in itself might make one hesitate in making a diagnosis of trachoma. The clinical points on which the diagnosis was made were as follows: Superficial vascularity of the cornea above, gelatinous oval, translucent elevations well back of each fornix, and whitish deposits in each tarsal conjunctiva. It was recommended that each deposit and elevation be punctured with a needle and the lids gently "rolled." The continued improvement under mild treatment (or no treatment at all) led Dr. Donnell and the patient very wisely to disregard the advice, and today he seems to be on the highroad to recovery. The course of this case does not necessarily argue against the diagnosis of trachoma, as there are many well authenticated instances of the termination of the trachomatous process without treatment or with what would ordinarily be regarded as insufficient treatment.

Dr. M. Jacobs asked whether the question of sensitization had been considered and also whether smears and cultures had been made.

Dr. J. M. Kellar said that he would like to make clear Lindner's views on the cause of trachoma. It seems to him that these views are not generally understood. Lindner holds that trachoma is caused by the socalled epithel-inclusions of Halberstaedter and Prowazek. These epithel-inclusions are also present in blennorrhea of the new born (inclusion blennorrhea) where the gonococcus is not found. According to Lindner, this inclusion blennorrhea is a trachoma of the new born, transmitted from the genitalis of the mother. He contends that trachoma is originally an infection of the genitalia; and that in the course of thousands of years, individual strains of this genital trachoma were being, and still are, constantly transmitted to the eye; and thence they are carried further from eye to eye; but that of these many infections of genital origin, only a few have survived in the eye as such. The rest, however, became extinct, sooner or later. Now those strains of the older and primary source of infection (the genitalia) which have survived in the eye and which are constantly being carried from eye to eye, have adapted themselves to the new conditions and have become more chronic and more tenacious than those strains (or infections), which have been more recently transmitted to the eye. So Lindner speaks of two strains—a genital virus and an ocular virus. From the results obtained by experimental infections, he is inclined to think that the unusually great variety of trachoma lesions, is due to different strains of the virus, which for various lengths of time have been transmitted from eye to eye, but which are all primarily of genital origin. Thus for instance, swimming pool conjunctivitis, which resembles trachoma clinically and in which epithel-inclusions have also been found, runs a shorter course and without the severe complications (pannus, scars, etc.). Here the virus has been transmitted to the eye for the first time. And so too, with the inclusion blennorrhea of the new born. Whereas the ocular virus, which primarily originated from the same source, but has existed in the conjunctiva for many generations and has become more chronic and more tenacious, causes the more severe complications.

Dr. H. D. Lamb said that swimming pool conjunctivitis which has been mentioned so much in German literature in the last few years is not uncommon. He saw a case of that type

last summer and altho there were no typical granulomata, there was marked roughness and thickening of the palpebral conjunctiva. It cleared up after several weeks treatment with 1% silver nitrate. This case of Dr. Donnell's he was able to observe thruout its course; Dr. Lamb agrees with him that it is probably best classified as an inclusion conjunctivitis and is not trachoma. The secondary corneal involvement he thought was due to drying of the cornea following the intense conjunctivitis.

Lindner brought out an exact technic of preparing a smear on a coverglass from scrapings taken with a platinum scraper from the upper lid, dropping it into a fixing fluid of diluted bichlorid of mercury and acetic acid and staining with Giemsa's stain. Lindner says it is very difficult to find the inclusion bodies. Dr. Ida Bengsten now working at the U. S. Public Health Trachoma Hospital at Rolla, Mo., has done quite a little work in studying inclusion bodies. Certainly judging from the literature, the Germans have a distinct impression there is such a thing as inclusion conjunctivitis distinct from trachoma. Evidently this process does not go deeply into the tarsus and leaves no scarring after running a chronic course. Sometimes there is corneal involvement altho never a typical pannus. We all probably remember cases we have seen in our practice that could hardly be called trachoma and yet had many signs of trachoma. Inclusion conjunctivitis is a good term for at least some of these cases.

Dr. Donnell in closing said in answer to Dr. Jacobs' questions that the smears unfortunately were made rather late. As he understood it the inclusion bodies do not show except in the early stages and he presumed they were not present. Smears and cultures were made from the conjunctiva and one was made by Dr. Thompson. The culture showed staphylococcus albus, probably a contamination. In the matter of sensitization this case seemed to have acute exacerbations and he thought he had traced it to the trips the patient made into the country. The patient conceived the idea the eye got worse after eating fish but this idea was exploded after careful watching.

Charles W. Tooker,
Editor.

THE KANSAS CITY EYE, EAR, NOSE AND THROAT SOCIETY.

Section on Ophthalmology.

March 17, 1927.

Dr. Joseph W. Kimberlin, Presiding.

Abrasions, Contusions and Burns of the Eye.

Dr. H. B. Hedrich called attention to the difficulties encountered in handling second and third degree burns of the eye. The lack of mucous membrane is usually the greatest problem. He suggested using mucous membrane from the middle turbinate. Attention was also called to the danger in such cases, of causing increased intraocular tension by the careless use of atropin. Intraocular hemorrhages may be caused, first by increasing the intraocular tension as by contusions; second, by diminishing the intraocular tension as by rupture of cornea or sclera. The damage done by such hemorrhage depends on the nature of the tissue affected, (delicate tissue like the retina when torn up being destroyed) and the amount of subsequent organization which may press or pull surrounding structures. Contusion may cause hemorrhages in the anterior chamber. These usually readily absorb. If they become organized they may form pinkish gray colored masses in the bottom of the anterior chamber. In such cases the hemoglobin may pass into the substantia propria of the cornea producing staining of the cornea, giving rise to a brown or green appearance of the cornea. This may be mistaken for a dislocated lens. This frequently occurs in eyes with an increase of tension. This pigment is absorbed beginning at the periphery, and taking between eighteen months to two years to clear up entirely.

Intraocular Foreign Bodies and Perforating Injuries of the Eye.

Dr. Joseph W. McKee dealt with the advisability and method of removal

of different types of intraocular foreign bodies. He advised the removal of all magnetic foreign bodies from the globe providing there has not been too severe laceration at the time of injury. Nonmagnetic foreign bodies may be removed from the anterior chamber and lens with a fair degree of success. He feels that any attempt to remove nonmagnetic foreign bodies from the vitreous chamber is likely to do more harm than good.

The prognosis depends to a large extent upon the size and consistence of the foreign substance, the amount of trauma to the ocular structures at the time of injury, whether any infection was carried into the globe or not and upon the removability of the foreign body, each case being a problem unto itself.

Five cases were presented where the foreign body had been removed from the vitreous chamber. All were cases of steel removed thru scleral incisions after localizations by the Sweet method, three cases getting 20/20 vision, one 20/40 vision, and one 10/200 vision.

Ocular Tuberculosis.

Dr. Albert N. Lemoine presented the case of Mrs. U. K., aged 29. She came on Nov. 15, 1926, complaining of pain and inflammation of both eyes. This began about three months previously and was getting worse. She also had frontal headaches, which radiated to the occiput. Vision had been very poor all her life. As a child she had repeated attacks of pain associated with inflamed eyes, and marked photophobia. Off and on all thru childhood, it had been necessary for her to remain in a dark room for months at a time. Then she went along for the past few years with very little pain and the vision remained about the same until three or four months ago, when the eyes became red and painful and vision was getting much worse. Recently she had been treated with iodides and atropin, but had been getting worse all the time. Vision with the right eye equalled fingers at 1 foot, and with the left, light perception only. The patient had moderate photophobia. There was profuse lacrimation with mucoid discharge. The lids were slightly swollen. The conjunctiva of the lids showed slight scarring, as that of trachoma. The palpebral conjunctiva was slightly congested. The bulbar conjunctiva showed a moderate degree of xerosis which was most marked in the left eye. There was a fairly marked pericorneal congestion with both the deep and superficial vessels distended. There were several well defined deep scars scattered on both corneas, much more marked on the left. The scars with the slit lamp appear deep and well defined as those from a phlyctenular keratitis. The aqueous of both eyes was cloudy, with few precipitates on the lower quadrant of the posterior surface of both corneas. Both irides were congested with a grayish film obscuring all the iris crypts. This grayish film extends into the pupil forming a thin pupillary membrane. Both pupils were very small and fixed. Tonsils were diseased.

Laboratory: Wassermann and Kahn negative; urine negative; blood chlorides normal; basal metabolism —12. Roentgen ray of sinuses revealed no abnormalities. Roentgen ray of teeth revealed no pathology. Tuberculin test: 1/20 m.—gave a focal, local and general reaction. Temperature was 99.4° F., and the eye became more painful.

The eyes were more congested. Patient was given tuberculin in increasing doses every seven days and atropin 1% to use at home three times a day, and thyroid extract one grain per day. The eyes gradually improved and have been quiet since January 1st. On general principles her tonsils were removed Feb. 2, 1927. At present the patient with a — 16.00 S. = — 2.00 ax. 180° has 20/200 vision with the right eye and counts fingers at four feet with the left eye. The eyes are no longer red and the patient has no pain whatsoever. At present the patient gets no reaction from one mg. of O. T.

Discussion. Dr. Joseph Lichtenberg said that tubercular iritis, or uveitis was much more frequent than

was usually assumed. The diagnosis can be made only by using the tuberculin test and observing the focal, local and general reaction. Only the focal reaction is diagnostic. In giving tuberculin one must begin with a small dose and increase each dose, being careful that it produce only a very mild focal, local or general reaction. He also mentioned that in case of burns the most important thing was to prevent symblepharon. Shell forms inserted over the eye are very useful for this purpose. In case of rupture of the sclera, one should use conservative measures. In discussing intraocular foreign bodies he advised if the lens were injured that the foreign body be brought into the anterior chamber with the Haab magnet; if the lens were not injured, that it be localized with roentgen ray and the shortest route chosen, making a small incision thru the sclera only.

Dr. George Bellows in discussing the paper on foreign bodies cautioned against radical procedures in nonmagnetic, intraocular foreign bodies, as some eyes tolerate them remarkably well.

Dr. Pickens advised that in all cases the foreign body should be localized by roentgen ray and that it should be removed by the shortest route and not thru the anterior route.

Dr. Hedrick mentioned the efficiency of inserting a magnetic forcep into the eye and applying the magnet to it to remove intraocular foreign bodies.

Dr. Joseph Kimberlin called attention to the fact that eyes tolerate glass and lead better than other foreign bodies. These cases should be examined with the best illumination and magnification possible.

Dr. Alvin Baer discussed the case with tubercular iritis and advised first making a diagnosis and then getting a careful medical examination to eliminate any active tuberculosis before attempting tuberculin therapy. An active tubercular focus is a contraindication to tuberculin therapy.

Albert N. Lemoine,
Recorder.

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Section on Ophthalmology and Oto-Laryngology.

December 17, 1926.

Dr. W. T. Davis, Chairman.

Ophthalmic Plastic Surgery.

Major A. G. Wilde reported the case of "A," an army officer, who two months previously had been kicked in the face by a horse. The malar eminence was destroyed along with the inferior orbital margins, and the eye ball was ruptured. The globe was immediately enucleated, and after the acute symptoms had subsided, he was transfered to the Eye Clinic of the Walter Reed General Hospital, for plastic repair of the face.

The malar eminence was depressed, and the inferior orbital margin destroyed to the extent that a satisfactory prosthesis was improbable. The lids were not damaged either anatomically or functionally.

A cast of the entire face was first constructed of plaster of paris. By fitting it onto this cast, a piece of soft wax was then shaped so as to fill out the normal contour of the face, using the opposite side as a pattern. The wax pattern was then placed in a sterile solution, for use during operation.

Under general anesthesia, the costal cartilages of the right side were exposed, and a piece resected and whittled down to the size and shape of the wax model.

An incision was then made at the outer portion of the malar bone, the periosteum dissected up over the depressed area, and the cartilage slipped into the subperiosteal pocket thus formed. Only the skin incision was sutured.

The graft took immediately, restoring the contour to the face. After a well fitting and accurately matched prosthesis had been prepared, it was worn with comfort, and the officer was returned to duty with the Field Artillery.

Major Wilde reported the case of "B," a private of infantry who was struck over the left eye by the handle

of a gas engine, which back-fired while he was attempting to crank it. A small skin wound was produced, which was flushed out with a solution of mercurochrome, and the edges approximated with sutures.

For several hours there was no inconvenience experienced, but during the following night, pain and redness developed around the site of the skin lesion, followed by high fever merging into prostration and finally coma.

A severe erysipelas had developed at the site of the injury, involving the face and scalp. Within a few days there was a rapidly progressing orbital cellulitis, during which the anterior portion of the eye ball sloughed out followed by its contents, along with the greater portion of the orbital muscles, and both upper and lower lids.

A dissemination of the infecting organism thruout the blood stream caused several deep abscesses which required opening. His condition was desperate for several weeks. Eventually he cast off the infection, regained his usual weight and vigor, and was transfered to the Eye Clinic, Walter Reed General Hospital for plastic repair.

The lids were absent, having been replaced by a cicatricial web that closed the orbit. The entire orbital margin was adherent to the subjacent bone, a long scar, the remnant of an incision for drainage, ran from the position of the former external canthus horizontally outward to the hair line. Nothing could be palpated in the orbit, as the cicatricial web closing it was too tense.

It was evident the treatment of this condition could be divided into two phases: First, measures tending to insure the safety of the remaining eye. Second, the less important tho more arduous task of producing some improvement cosmetically.

The orbit was first explored under local anesthesia, and a small nubbin of sclera found attached to the tip of the optic nerve. This was enucleated, and upon opening found to be filled with uveal pigment. The elimination of this probably removed an excitant of sympathetic ophthalmia.

At the next operation, the socket was deepened, and extended upward and downward to the orbital margins. A cast made by pressing warm dental compound into the newly formed socket was next prepared. A Thiersch graft was then removed from the inner surface of the thigh and wrapped around the mould with the fresh surface outward, the whole being then replaced into the projected socket.

As the lids were lacking, a line of sutures was run from the under surface of the brow to the upper margin of the cheek, to approximate these positions and retain the mould in situ. This remained undisturbed for two weeks. When finally removed and the cavity cleansed, it was found covered thruout by a smooth epithelial lining. Subsequently this socket showed no tendency to shrink.

A pattern was then made of the upper lid area in heavy tin foil. The outline was then cut from the entire thickness of the forehead, with its pedicle attached to the temple so as to take advantage of the temporal artery circulation. After the flap had been dissected up and all bleeding stopped, it was sutured carefully back down into its bed. This delayed transplant was to insure development of a collateral circulation prior to the transplant of the flap into its new position.

One week later a flap was turned down from the under surface of the brow, using the edge of the former lid as a hinge. This was designed so as to form the epithelial lining of the projected upper lid. The flap from the forehead was then placed upon the anterior surface of the newly formed upper lid, and both sutured together.

Healing was rapid, and one week later the flap was cut loose from its pedicle, and the temple repaired. This gave an effective upper lid.

The lower lid was handled quite differently. An enlarged Wharton Jones of the V Y type was done, and the lower lid rolled upward and inward so as to heighten its edge, and at the same time afford an epithelial lining. After this had healed into new position, a bilateral tarsorrhaphy completed the operative work.

A mould was again made of dental

compound and a shell eye embedded in its surface. This remained in the orbit perfectly, but naturally had the staring effect characteristic of the relined socket. However, the total effect was a great improvement on his previous appearance.

Major Wilde reported the case of "C," a soldier, aged 24, who was transferred to the eye clinic of the Walter Reed General Hospital from Camp McClellan, Alabama, for treatment of an epithelioma below the right eye.

Occupying the right lower lid and immediate adjacent portions of the cheek was a dark colored, slightly raised, indurated area, which bled readily when touched. Clinically it was typically epitheliomatous, altho no biopsy was made.

As the growth was rapidly progressing it was decided to first employ roentgen rays reserving for surgery the final stages of the repair. No evidence could be found of glandular involvement nor was it adherent to the bone. No evidences of blastomycetes could be found on either staining or culture.

The lid margin was protected by a lead strip, as it had remained free from involvement. Intensive doses were applied at as frequent intervals as the radiologist thought could be endured. At the same time the cervical region was rayed, hoping to stop any metastases that had not as yet grown sufficiently to become manifest.

While the portion of the growth exposed to the ray soon showed improvement, the edge of the lid that remained protected by the lead became rapidly invaded. This extended around the inner canthus and for a short distance on the upper lid.

As the application of roentgen rays was not thought feasible to this region, it was subjected to electric coagulation. This effectively removed the growth, but also completely sealed upper and lower puncta. Epiphora becoming troublesome, the accessory lacrimal gland was resected which entirely relieved the condition.

The large area of growth soon cleared, and its site was occupied by white cicatricial tissue that slowly contracted and produced a disfiguring ectropion. Nothing was done for six months, to allow contraction to proceed to its probable limit.

The lower lid edge was then dissected free, and a flap turned down from the temple to fill the defect, and sutured into position. This healed readily and restored the normal contour to the lid. On account of the defective nutrition of the area of scar, operative transplants were not regarded as advisable. The tissue from the temple was thicker than that of the lower lid, and required to be thinned considerably and its edges beveled accurately so as to merge well with its surrounding.

The effect was excellent, the normal contour of the lid remained undisturbed, and no epiphora was experienced.

JAMES N. GREEAR, JR.,
Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

December 18, 1926.

DR. JAMES M. SHIELDS, Presiding.

Disciform Keratitis.

DR. MELVILLE BLACK reported the case of Mrs. M. K., aged 25. She first noticed a grey spot on the cornea of the right eye three weeks ago and is now aware of a slight dimming of vision; R. 20/30, L. 20/15. This apparently is a case of disciform keratitis in its earliest stages. At present the disc, situated in the lower temporal quadrant of the cornea has discrete edges, except above where there is a corneal haze extending upward. There are two blood vessels running up into it from below. There is another vessel which angles off to the nasal side and disappears into the sclera. The slit lamp shows a dense, solid, opaque spot, of grey color, with a yellow tinge. The principal vessels branch in various directions and some run into the greyish area above and some form hairpin loops. It is possible that the main opacity is extending in that direction. The opacity is now 2 mm. in diameter and nearly round. There is about 3 mm. clear cornea between its lower margin and sclera. The epithelial layer over it is intact. The eye is not

inflamed and has no photophobia. The patient is a well developed young Russian Jewess and has one child which she says is healthy. Complement fixation test made for tuberculosis was reported positive; Wassermann reaction negative. In the right upper jaw she had a dead first molar tooth plugged with amalgam and a canine on the same side that was dead and badly diseased. The canine was extracted today and the molar will come out in a few days.

Discussion. Dr. Wm. C. Finnoff presented a slide showing the pathology of such a lesion.

Dr. Edward Jackson recalled two cases, in which the lesion involved the central part of the cornea and was nonvascular as is usually the case. In such a case, an origin in a focal infection should be thought of.

Dr. Geo. L. Strader had seen a case due to injury by a cinder, in which the lesion was treated by nitric acid; but after recovery from the inflammation left a permanent opacity.

Dr. C. E. Walker had seen two cases in which cholesterin crystals remained in the permanent scar.

Traumatic Retinal Detachment.

Dr. Wm. H. Crisp presented a man, aged 32, who ran his automobile into a ditch and collided with a telephone pole. The result as to the right eye was an angular tear in the sclera, about a quarter of an inch below the cornea. The scleral wound had been covered with a conjunctival flap and the vision had rapidly improved with clearing of the vitreous. Six days after the injury, a large amount of peripheral retina had been found detached and on the seventh day after the injury, fully two-thirds of the whole retina was detached and the vision had fallen from 3/12 to 2/20. Two days later, under atropin and rest in the horizontal position, the detachment was becoming less extensive and the vision had improved to 3/20. In a few days practically the whole of the retina became reattached, the principal exceptions being in the form of holes running partly concentric with the disc and partly in relation to the scleral wound. Vision was almost 3/7 uncorrected. This was the second case of the kind Dr. Crisp had seen.

Discussion. Dr. Melville Black had trephined in a case of retinal detachment which was improved at the time only to recur some weeks later.

Traumatic Cataract.

Dr. Wm. H. Crisp presented a man, aged 23, whose left eye had been cut by a piece of glass from a broken flask. The resulting traumatic cataract had for some time undergone satisfactory absorption but after several weeks the condition became stationary, with some increase of tension and with lens remains in the anterior chamber. Thru a keratome incision enlarged with scissors (the chamber being shallow), the lens remains had been thoroly irrigated out of the anterior chamber. Rapid improvement had resulted. The pupil was intact.

Rupture of Choroid.

Dr. Wm. H. Crisp exhibited a case of laceration of the pupillary margin and rupture of choroid in a boy of 8 whose left eye had been struck by a toy arrow shot by a younger brother. There were notches in the edge of the pupil, which remained dilated in spite of the use of pilocarpin. The fundus showed a larger choroidal tear, down and out from the disc, a minute defect at the macula, and changes at the nasal margin of the disc. The injured eye had vision of nearly 20/30 and accommodation of 9 diopters.

Lacerated Wound of Eyeball.

Drs. Wm. C. and Wm. M. Bane presented the case of M.O., aged 30, laborer. He was injured Nov. 27, 1926, by a piece of steel striking the right eye. It was stated that a piece of steel ¾ inches in length was removed from the eye within a few minutes after the injury, by a fellow workman. He was then sent to Denver and examined on December 2. Vision: R. = shadows, L. = 5/5 — 2. The right lids were edematous; there was a cut in the central margin of the lower lid with a horizontal cut thru the center of the right cornea which was about 7 mm. in length. The iris was incarcerated in the corneal wound and firmly adherent.

There was a small projection of the

iris thru the wound. This was clipped off and atropin instilled. A subconjunctival injection of cyanide of mercury 1/2000 was given. The roentgenogram showed no foreign body. The pupil has pulled open slightly at the top above the wound, where it is possible to get a view of the fundus. Vision now: counts fingers at two feet when the upper lid is elevated. There has been no apparent involvement of a sympathetic nature. The edema of the lids has continued, otherwise very little change has been noted.

Discussion. DR. MELVILLE BLACK thought the prognosis was grave and enucleation advisable, in which Dr. Pattee and Dr. Wm. C. Finnoff concurred.

Siderosis Bulbi.

DR. WM. C. FINNOFF reported a case where the foreign body entered the right globe Dec. 31, 1925, a little less than a year ago. Vision was good until recently when it began to fail. On Oct. 11, 1926, vision R. = 0.6, L. = 1.2 without correction. Roentgen ray examination disclosed a foreign body 1 mm. by ½ mm. in the vitreous. It was 8 mm. back of the cornea, 6 mm. below the horizontal meridian and 2 mm. to the nasal side of the vertical meridian.

The cornea seemed normal by oblique illumination but the slit lamp and corneal microscope revealed slight brown stain on the posterior portion of the corneal section. The right iris was darker than the left. Staining of the anterior cortex was distinctly seen as numerous spherical globules in the anterior cortex immediately beneath the lens capsule. Removal of the foreign body was advised but refused until November 20, at which time vision had been reduced to 0.26. After the removal of the foreign body, as might be expected, no change had taken place in the staining of the eye. Since the operation, the vitreous has been remarkably free from disturbance.

Pathologic sections were shown which demonstrated the changes that would be seen in an eye as reported above. A second series of sections showed the late effects of siderosis in the macula. A third series showed the socalled immediate staining, that is, staining around the foreign body. This was from a recent injury and remote changes had not occurred as sufficient time had not elapsed.

The sections were stained by Prussian blue stain for iron. The siderosed tissues were stained dark blue. The cornea, iris and ciliary body, showed diffuse staining while under the anterior capsule, round masses of iron oxide were seen. The retina contained granular collections of rust, in all its layers, and similar collections were present in the inner layers of the optic nerve. The choroid and inner portions of the sclera were diffusely stained.

DONALD H. O'ROURKE,
Secretary.

PUGET SOUND ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

March 15, 1927.

DR. H. V. WÜRDEMANN, Presiding.

Kroenlein Operation.

DR. G. W. SWIFT presented E.C., white boy, aged 10, who was shown to this society some years ago with a diagnosis of tumor at the base of the skull. On Nov. 29, 1924, examination revealed a marked exophthalmos of the left eyeball; the pupil did not react to light; disc was absolutely white; vision nil. A diagnosis was made of a cyst of the orbit and operation recommended. The patient was next seen on July 26, 1926. Since the previous examination the patient had been gradually developing exophthalmos until the left eye protruded well beyond the orbital margin; right vision normal; a general physical examination was negative for pathology; rotation of the left eye was limited above, below, in and out; disc was white.

A modified Kroenlein operation was done on the 2nd of August. When the orbit was exposed a tumor approximately the size of the eyeball was found immediately behind the eyeball and involving the optic nerve; it was with difficulty that this tumor was separated from the eyeball; it was separated and removed, Tenon's capsule closed and the edges of the periosteum brought closely together over the bone which had been lifted out to

allow for expansion of the orbit; the patient made an uneventful recovery. There is a moderate degree of ptosis of the upper left lid but the patient is able to rotate the eye in all directions to a moderate degree; the fundus shows a rather peculiar change; at first the retinal vessels were all white lines, but since then the entire fundus has become almost white with heaps of pigment scattered about in various places; the tension is still approximately normal.

He presented this case in order to show what can be done in the removal of these tumors without sacrificing the eye. Some of the cases are intracranial as well as intraorbital and this operation does not lend itself easily to exposing the postorbital fossa. He has had three such cases come to operation. In one it was necessary to remove the eyeball because a complete exenteration was decided after a diagnosis of sarcoma had been made. The third case was a neuroma of the optic nerve extending beyond the orbit. The patient did not recover after the operation but died from hyperthermia.

Discussion. Dr. Clarence W. Shannon has seen three cases. The first was a sarcoma of the orbit involving the optic nerve. The nerve was resected with the growth. The second was an angioma of the orbit, removed with difficulty, hemorrhage being controlled somewhat by use of electric cautery. The external rectus was cut and sutured open without disturbing motion or producing diplopia. The third case was exploratory with negative findings.

Dr. Josiah Davies had had two cases in the last two years requiring a Kroenlein operation. The first was in a Japanese woman.

Dr. Würdemann spoke of a case of sarcoma of the orbit removed by this route. The patient was still living and there has been no recurrence.

Dr. Cameron referred to a case previously shown to the society, of sarcoma of orbit followed by recurrence in the intestines.

Ciliary Body Cyst.

Dr. Will Otto Bell presented Mrs. J.K., white, aged 47. Three months ago the patient was in an automobile wreck. Since then there had been continuous pain in the right eye. With her right eye, a month ago, she found that she could not see her fingers when laid on her nose. She had noticed flashing of lights at intervals. Two weeks ago the vision of the right eye was markedly reduced.

Examination showed teeth septic, pyorrhea present. Vision of O.D. corrected was 8/10—2, O.S. 12/10. Myopia was present in right eye. Tension O.U. normal. The right pupil was slightly diagonally oval, reaction to light and accommodation was slow. The left pupil was normal. On the right sclera, close to the cornea, were three well marked anterior veins said to have appeared in the last two months. The temporal side of the iris was slightly atrophic and had a few pigment granules on it. After dilating the pupil a brownish spheroidal cyst was seen at the temporal side. The cyst was covered with a degenerated membrane which had no undulations. Evenly distributed pigment covered a system of straight flat vessels running proximo-distalward. The mass was translucent. There was no fluctuation when the eye moved. Field showed a marked nasal contraction. Blood Wassermann was negative. Differential blood count was negative. The diagnosis suggested was ciliary body cyst caused by aqueous humor in transit following sudden concussion. On the other hand this could be a purely degenerative cyst.

Discussion. Dr. H. V. Würdemann said the differential diagnosis in this case lies between benign or malignant uveal tumor and a localized exudate from the ciliary body producing the condition known as pseudoglioma. It was granted that this is a tumor of the uveal tract, it was believed to be nonmalignant on account of its being translucent and fully permeable to diaphanoscopy. The badly infected teeth would be a cause of uveitis producing this exudate; on the other hand there is a clear cyst wall well defined. It may be a degenerative cyst of the pars ciliaris retinae, a condition seldom seen but described.

The question arises whether this is a degenerative cyst or due to entozoa,

which have been reported from time to time and have been seen by some of us in America due to cysticercus and to actinomycosis. Cyst of the iris and conjunctiva are relatively common. As to the outcome of this case only time will tell. Observation and local treatment, removal of foci of infection, as has been done by the dental surgeon, and observation may result in retaining the eyeball with some vision. Enucleation might have to be done if the diagnosis was changed and inflammatory symptoms occurred.

Dr. Frederick Kiehle having seen several cases of cysticercus said the case was not cysticercus, neither was it a detached retina. He believed it was a retinal cyst.

Dr. G. W. Swift agreed with this diagnosis.

Papilloretinitis.

Dr. J. T. Dowling presented Mrs. J.T., 45 years old, with medical diagnosis of essential hypertrophic chronic nephritis. In the course of routine examination her ear, nose and throat findings were practically negative with the exception of some polypoid degeneration of the mucous membrane of the anterior ethmoidal area on the right side. Left side showed evidence of fairly acute exacerbation of an old papilloretinitis and light perception only. The right eye also showed the same retinochoroidal condition but the disc was obscured by a definitely outlined mass 2 disc diameters broad, apparently arising from the retinochoroidal tissue at its junction in the upper portion with the disc. This was approximately four or five diopters deep. It was greyish-white in color and had the appearance of nerve tissues. There were many small newly formed irregularly shaped vessels running thru it. The mass was irregularly oval in outline and was fixed, not moving with the eye movements. Transillumination was indefinite. Patient was totally blind in this eye. Pupil reactions, iris, lens and vitreous in both eyes appeared normal.

Impression was that it was a primary tumor of the optic nerve on an old albuminuric papilloretinitis.

Discussion. Dr. G. W. Swift said this woman presented a double papillitis or optic neuritis, resembling more a true optic neuritis than a simple edema. He did not observe the mass over the right disc, that Dr. Dowling described but recognized rather a nerve-head thickened by new formed and necrotic tissue substance. Undoubtedly it was a case of albuminuric retinitis of long standing and not due to an intracranial lesion. He asked the woman about her headache and she stated she had not had headache or vomiting except when taking medicine, supposed to be potassium iodid.

He believed it is very important in all cases of optic neuritis to get a careful history regarding headache. He has never seen a case of brain tumor that did not have headache as the predominating symptom. In this particular case the absence of headache would convince him that it is not an intracranial lesion.

Luetic Uveitis.

Dr. H. V. Würdemann presented Mrs. J.D., aged 30. She was referred by an optician in 1926, on account of poor sight in the right eye for three weeks. Vision with right eye was 6/60, left 6/6. There was no congestion. There was keratitis punctata of the right eye. One adhesion of iris at lower part was seen only on dilation of the pupils. There was no evidence of acute iritis. There was no ciliary ring of blood vessels. The left eye showed no evidence of disease.

She had been married five years and had had two children, one miscarriage.

There were large infected tonsils. Teeth were poor and there was no focal disease. Wassermann was four plus. There were apical abscesses of some teeth which were extracted by Dr. Heap. Patient was sent to Dr. Peacock for strenuous specific treatment. During the first course of salvarsan the disease in the right eye progressed further with the uveitis showing and vision became greatly reduced. In three months after the second course the inflammation disappeared leaving, however, four large spots of organized exudate on the posterior surface of the right cornea. About this time the left eye became sensitive to light but did not show any inflammation. Feb. 24, 1927, there

was found a very fine keratitis punctata of the left eye; this progressed until it became quite pronounced in typical triangular formation and is now pursuing the typical course but promises not to be as severe as that of the right eye.

In January the husband showed a four plus Wassermann. The two children were negative. The patient is under general specific treatment, the eyes being kept quiet by atropin, dionin and high frequency treatment.

This case is reported to show that an insidious inflammation of the uveal tract may occur without pronounced inflammatory signs and despite strenuous treatment show first in one eye and then the other and that diagnosis of the general condition would probably not have been made until some severe lesion had occurred had not the case appealed to the oculist on account of the slight blurring of vision of one eye.

Uveitis.

Dr. D. H. Bell presented a case of uveitis of the right eye with severe pain and ciliary congestion for the past month. The eye showed a cataract dating back for twenty years, due to a blow on the eye at that time.

The iris showed almost complete synechiae with a small pupil. There was iris bombé thruout the complete circumference. There was no light perception. A yellowish cyst 3 mm. in diameter was growing from the root of the iris at the nasal side.

This case was presented for suggestion as to treatment. Pain was relieved and the redness and congestion was lessening under atropin and hot applications.

W. O. Bell,
Secretary.

PITTSBURGH OPHTHALMOLOGICAL SOCIETY.

February 28, 1927.

Dr. E. B. Heckel, Presiding.

Chorioretinitis Electrica.

Dr. Adolph Krebs presented the case of an electrician, aged 37, who was first seen on Oct. 21, 1926, complaining of failing vision. He stated that three years ago he received an electric flash and at intervals of one week and three months later received two more similar flashes. The only immediate effects of these numerous flashes were the usual local symptoms of electric ophthalmia, for which a soothing collyrium had been given. A month following the last flash the vision had started to fail. For this he had been under the care of several oculists for the last two and a half years.

Examination shows: vision O.D. fingers at one meter; vision O.S. 7/30. Cycloplegic refraction shows practically emmetropia. It is impossible to improve the right eye with a correction while the left improves to 7/20 with —.25 sphere. The fundi show extensive chorioretinitis.

Discussion. Drs. E. A. Weisser, Edw. Stieren, E. B. Heckel, G. E. Curry, J. M. Steim and S. Smith are of the opinion that the lesions antedate the injury and are systemic rather than traumatic.

Dr. Edw. Stieren states that he has never seen intraocular pathology result from electric flash.

Dr. E. B. Heckel cites a case of an electrician who was exposed to the direct action of an electric arc for about five minutes. The immediate result was a positive scotoma, that had its origin in an absolute scotoma of about five minutes in diameter, at the fixation point. The fundi and media were absolutely negative to observation. The scotoma disappeared in about six weeks under the use of strychnin internally and atropin locally.

Exophthalmos Following Thyroidectomy.

Dr. J. M. Steim described a case of exophthalmos which developed coincident with the classic symptoms of exophthalmic goiter. November, 1924, a thyroidectomy was done with resultant disappearance of all symptoms. May, 1926, a progressive right exophthalmos developed and has increased to date. This is unaccompanied by symptoms other than a diplopia, which is due to her right hyperphoria.

Discussion. Dr. E. B. Heckel reports seeing this woman in the fall of 1926. She then had a starting right exoph-

thalmos. Studies of the sinuses by transillumination and roentgen ray were negative and his conclusion was that of residual exophthalmos, the sequella of her thyrotoxic condition. He thinks that the bulging has increased since that time.

Dr. Edw. Stieren thought there was a limitation of motion of the right eye down and in and that there was a mass at the lower outer orbit below the globe. He suggests an exploratory incision in this region, especially since it would be without danger.

Dr. S. Smith called attention to the present pulse of 120 and suggested that she was still thyrotoxic.

Glaucoma Simplex Treated with Glaucosan.

Dr. S. L. Koch reported several cases, in which glaucosan was used with beneficial results, as shown by the breaking up of the adhesions and by the rapid and prolonged drop in the intraocular tension. He also reports that the action of the miotics are augmented following the use of glaucosan. He explained that the drug is a combination of dextrorotatory deltanephrin and methylaminoacetopyrocatechol, having the same effect locally as laevorotatory deltanephrin, without its systemic effects. It is used locally and by subconjunctival injection; the latter being the method of choice. In acute glaucoma the results are disappointing.

Discussion. Dr. V. E. VanKirk reports seeing it used once in glaucoma simplex in which there was a decided fall in tension that lasted into the following day and in which there was considerable local reaction.

Dr. Adolph Krebs reports its use by instillation in a case of glaucoma simplex with posterior adhesions, in which followed dilatation of the pupil, facilitating the exploration of the media. The tension fell and remained 8 mm. lower seven days after. In the same case a series of instillations caused lowering of 8 mm. in the tension and the fields were slightly larger.

Dr. Krebs used it in a case of luetic iritis with plastic exudate in the anterior chamber. The adhesions were broken up, the pupil dilated and the exudate was rapidly absorbed.

Thomas H. Manley Jr., Secretary.

OMAHA AND COUNCIL BLUFFS OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY.

March 16, 1927.

Dr. A. R. Knode, Presiding.

Trephine for Glaucoma.

Dr. Banister reported the case of a man with a blind glaucomatous eye which he trephined for the relief of pain. The pain recurred and the eye was enucleated when a flat sarcoma of the choroid was found. Radium was used in the orbit afterwards.

Discussion. Dr. Harold Gifford mentioned the case of an eye in which he attempted evisceration. He discovered the presence of a melano sarcoma of the choroid and performed an enucleation instead. There was no local recurrence and in fact he has never seen a local recurrence following an enucleation for melanosarcoma of the choroid. In his experience, however, most cases died of metastasis in the liver or elsewhere.

Dr. Dean of Council Bluffs, expressed a similar opinion in regard to the rarity of local recurrence and believes that using radium in the orbit afterwards is unnecessary. In a recent case, he inserted a glassball in Tenon's capsule following enucleation for suspected melanosarcoma.

Brain Tumor.

Dr. Banister reported a case of probable brain tumor. The main symptom was double vision and paralysis of both external recti. Dr. Banister also discovered bilateral choked discs which had not been noticed in a previous examination by a reliable oculist a few weeks before. Evidence of tumor in the kidney thought to be the primary tumor was found. A subtemporal decompression was done.

Orbital Tumor.

Dr. Harold Gifford reported a case of a man of thirty-five who had noticed a prominence of the right eye for the past two or three years. The eye was pushed upward and a tumor could be felt near the lower border of the orbit. An incision along the lower orbital margin was made and a tumor 1¼ inch long by 1 inch wide was re-

moved. It was adherent slightly at one place at the outer wall of the orbit but was removed completely with no difficulty. The tumor was a multilocular hemangioma. Healing was uneventful.

Microphthalmos.

Dr. Isaacs reported a case in a baby seen first when one day old. The cornea was barely visible at this time and the lids were held open. Six months later the baby was well developed in every way except the rudimentary eye which was very small. Apparently no retinal cyst was present. The cornea was nearly opaque. This was the sixth child of healthy parents. A sister two years old was congenitally deaf, the others presenting no abnormalities.

Bacteriology in Ophthalmology.

Dr. Sanford Gifford read a paper on this subject.

It was discussed by Drs. Dean, Judd, and Harold Gifford.

Sanford R. Gifford,
Secretary.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Section on Ophthalmology.

January 20, 1927.

Dr. Edward A. Shumway, Chairman.

Reconstruction of the Eyelids by Epithelial Grafts.

Dr. C. E. G. Shannon and Dr. George H. Cross presented a case of cicatricial ectropion of all four lids with plastic reconstruction by the epithelial outlay method of Gillies.

The patient, a young married woman, had suffered severe burns of the lids and face in November, 1923, while polishing a stove with polish that contained benzine. Exposure keratitis, fortunately, had not developed.

The operation was carried out first on the right side, and two weeks later on the left. An incision was made about 3-4 mm. from the line of the imbedded lid margin, extending from canthus to canthus, and separation made in what may be designated as the lines of cleavage. Following the dissection, a Thiersch graft, taken from the inner side of the thigh, was placed with the raw surface outward over a mold of modelling compound and imbedded in the wound, and the wound edges brought together with sutures. Ten days later, the mold was removed by cutting with scissors along the line of incision, and removing the mold with forceps. At first, there was quite a depression at the site of the graft on either side, but in the course of time, aided by massage, these depressions gradually filled out.

In connection with this interesting operation, certain important facts should be borne in mind, as emphasized by Gillies:

First, operation should not be considered until contraction of the tissues to be grafted has entirely ceased, otherwise, the graft will develop unevenness from shrinkage of the structures beneath.

Second, that the graft completely covers the mold before insertion into the wound.

Third, that infection may supervene if excess of graft is not removed.

Fourth, particular care in the removal of the graft should be taken in opening up with the scissors the areas of the wound in which the mold was buried. If this is not done, the areas are apt to be pocketed.

Dr. George H. Cross pointed out that the Gillies outlay is a modification of the Essers inlay. The grafts are wrapped around molds of modeling compound with the outer surface next the mold. They are then buried in the tissue they are to cover and the edges of the wound sutured together.

He showed slides depicting the results of the operation in the various stages of the case reported.

Dr. Cross explained the differences between the inlay, outlay, and overlay as applied to skin grafting in the correction of defects of the eyelids. A case of contracted orbit, in which the skin was undermined with a scissors thru a vertical incision just below the outer canthus, was shown, and by a drawing he illustrated the method of producing this pocket, and showed the mold which was to be covered with an epidermal graft and inserted. At the end of about seven or eight days after

insertion, an incision is made thru the conjunctival surface of the orbit down thru the graft to free it from the mold; the mold, being removed from the orbit, leaves a well lined lower sulcus. This is different from the outlay where the mold is removed thru the same incision in which it was inserted.

Four other slides illustrated the overlay method of correction of cicatricial ectropion of three eyelids of a man burned with sodamide, a compound used in the manufacture of indigo. Here, following the removal of dense scars and the preparation of the lids for the graft, a thin epidermal graft was placed in position, then covered with a layer of warm compound, over which a tight bandage was applied. This enable a firm, even pressure to be maintained to all parts of the graft. There should be no undue hurry to remove the original dressing. The longer it is allowed to remain, the more liklihood there is of a perfect take. This is different from the outlay in that no suturing is required, and later inspection would show how little difference there is in the color of the grafted area compared with the surrounding surface.

Dr. Cross also showed three slides of a case operated upon by the outlay method giving a better idea of the steps of the operation. He pointed out that it is most essential that the graft be as thin as tissue paper, if such a comparison may be used. It may then be molded with the fingers so that it will cover the mold and will stay in place without suturing. Grafts that curl up and refuse to stick to the mold are too thick.

Finally, slides illustrating the older, open method of skin grafting were shown. In this method, nothing was allowed to touch the graft during the healing process.

Thus he showed three different methods for the correction of the type of lid defect of which Dr. Shannon's case was an example. In his case the outlay was chosen with the feeling that it would give the best results.

He was inclined to think that if a similar case would present itself again he would try the overlay method. Nevertheless, it is possible to reach a desired result by several different routes or methods. Dr. Shannon and Dr. Cross both felt very much pleased and gratified with the results obtained in this case.

Discussion. Dr. Wm. Zentmayer stated that he had a single experience with this procedure, and was likewise assisted in the operation by Dr. Cross. It was a case of cicatricial ectropion of the lower lid from a torch burn. The immediate result was disappointing in appearance altho the ectropion was corrected. The surface was very uneven. This, however, disappeared in the course of time.

The Principles of Syphilotherapy as Applied to the Eye.

Dr. John H. Stokes stated that the effective treatment of syphilis suffers today from a variety of defects, all more or less inevitable in the growth of the specialty of syphilology from the diffuse half knowledge of the clinical era of the 19th century. Traditional syphilotherapy was regional; while the modern syphilologist envisages and effectively manages the entire disease in any individual patient, rather than any one particular lesion. By the same sign, the point of view of specialists in other fields is apt to be local and restricted.

Ophthalmologists have labored under difficulties in their effort to deal with syphilis of the eye in modern times. The eye mirrors the nervous system, is the least accessible to influence of treatment, and is the scene of some of the most critical forms of relapse, especially under inadequate treatment. Moreover, since Ehrlich's warning against the possibility of unfavorable effect of the use of arsenicals on the optic nerve, it is small wonder that ophthalmologists have been conservative. Likewise, as in syphilis of other organs, one should not expect treatment to do away with scars, such as the Argyll Robertson pupil.

There are two fundamental principles: First, treatment should not be begun until the entire condition of the patient has been evaluated by complete examination; second, syphilis of a special structure should be treated as systemic rather than local syphilis.

There are three characteristics of arsphenamine therapy. First, it pro-

duces a flare-up when first given which may be damaging. Second, it is responsible for fulminating relapse if stopped too soon. Third, it produces healing with fibrosis too rapidly for functional adaptation. Therapeutic shock is less frequent and serious in the eye, but it may be disastrous. So the patient should have preparation with slower acting drugs and graded arsphenamine dosage.

Relapse and allergy. Arsphenamine causes a wholesale destruction of spirochetes, and may render the patient "allergic" as well as physiologically defenseless by the reduction of their numbers, for the drug removes the very excitant of bodily resistance.

The therapeutic paradox. This term means essentially damage by fibrosis in too rapid healing. There is no reason why a similar effect should not be produced in the eye as well as in the heart and liver, by the injudicious use of arsphenamine.

Specific vs nonspecific treatment effect. Treatment for syphilis irrespective of its action on the spirocheta pallida, has healing effects thru stimulation of general defense. This is shown in its effect on other disease processes. The effect of a false therapeutic test may be produced by a wrong interpretation of nonspecific effects.

Intensive treatment without therapeutic shock. Arsphenamine, because of its attack on the spirocheta pallida is responsible for the therapeutic shock. Mercury stimulates cellular resistance. Iodid produces lysis of the granuloma. Bismuth lies between arsphenamine and mercury. So, in general, the intensity of attack is favored by combinations of spirillicidal and resistance building drugs.

Local vs. general medication. In general, it may be said of all local antisyphilitic treatment that it is being slowly superseded as general treatment becomes more effective and its only value lies in its ability to reach a few spots inaccessible because of deficient blood supply.

Collateral factors in treatment. Factors of great importance are the relation of strain and trauma, and of focal and intercurrent infection, etc., to the incidence and course of syphilis of the eye.

Arsphenamine in ophthalmologic practice. This drug, the author draws from his experience, is only contraindicated in primary atrophy. Definite conclusions as to the effect of arsphenamine on the eye cannot be drawn until examinations of vision, fundus and perimetric fields be done on a series of cases before and after arsphenamine. The original "606" is the most effective form of drug.

Effective use of mercury. This drug is best used as a daily injection of a soluble salt or as inunctions. The former is rapid in effect, while the latter is slow but powerful. Arsphenamine may be used simultaneously with a soluble mercurial.

Status of bismuth. Present day conclusions are that it is a better spirillicide than mercury, but definitely inferior to arsphenamine. Its chief advantage in ocular syphilis is as an excellent opening in acute processes not advancing too rapidly.

The use of iodid. Investigation shows that to produce penetration of the drug, larger doses must be used, ranging from 15 grains, t.i.d. even to 500 grains t.i.d. Intravenous administration has proved valuable in those phases of eye disease which are aspects of neurosyphilis.

Active inflammatory lesions; optic atrophy. Surprising degrees of recovery in secondardy optic atrophy are often seen. But in primary optic atrophy the outlook is *nil* for recovery, and only fair for arrest. The author opposes the use of arsphenamine at the outset in these cases, and has seen little advantage from intraspinal and intracranial therapy, extolled by some observers.

Treatment of interstitial keratitis. Especially here should ophthalmologists avail themselves of the modern methods of syphilotherapy. This condition can be reduced in extent and severity to a surprising degree by the simultaneous use of the aforementioned drugs. Involvement of the eye may apparently be prevented and the frequency of relapse much reduced.

Tryparsamide. This drug has no virtues in ophthalmic syphilis. Danger of injury to the optic nerve is proving to be less than expected, and can be practically disregarded after the tenth

injection. A cooperative patient is essential to the best protection of the eye in these cases.

The author trusts that the frankness with which he has discussed the viewpoint of the syphilologist in dealing with ocular syphilis has not impressed his hearers as merely bumptious or calculated to arouse antagonism or ill will. If from an exchange of ideas, some element of the always priceless, because intelligent, reconciliation of general and special viewpoints can arise to the advantage of the victims of ocular syphilis, he will feel at once richly rewarded and generously forgiven.

Discussion. DR. KOLMER stated that the specific treatment of early and late syphilis of the eye and optic nerves is essentially similar to the treatment of syphilis in general except that greater caution is needed in the use of the pentavalent arsenicals like tryparsamide because of their more injurious effects upon the optic nerves than displayed by the trivalent compounds like arsphenamine and neoarsphenamine. He also pointed out the advisability of initiating the treatment of chronic syphilis of the eye by the administration of mercury and bismuth in association with one of the iodides in order to minimize or prevent the occurence of neural Herxheimer reactions that may develop if the arsenicals are employed at the outset in large doses.

He believes that in the treatment of syphilis of the eye and optic nerves arsphenamine and neoarsphenamine are the arsenicals of choice, but that mercury and bismuth are likewise valuable medicaments. He is convinced that tryparsamide may produce toxic amblyopia and that it should be used only with great caution when the eye is involved. He also believed that it is advisable to have the eye examined before tryparsamide is administered in the treatment of other types of chronic syphilis.

In his experience the treatment of primary optic atrophy has been frequently disappointing, altho the disease has been arrested in some cases, with improvement of vision, by intensive systemic medication with mercury, bismuth and neoarsphenamine in association with maximum doses of sodium iodid, the latter being sometimes given by intravenous injections. When this method fails to arrest the progress of the atrophic changes, he believes it is well to institute treatment by the Swift-Ellis method in addition to systemic medication.

LEIGHTON F. APPLEMAN,
Clerk.

ERNST FUCHS FUND.

Ophthalmologists for many years have received training and instruction in Vienna. The influence of the Vienna school of ophthalmology is world wide and its clinical teaching has been of inestimable value, especially in developing ophthalmology in this country.

Unfortunately, owing to the present economic conditions in Austria, the position of the younger ophthalmologists in Vienna,—for the most part, assistants in the two University clinics of ophthalmology in Vienna,—is a very difficult one. It seemed, therefore, that an opportunity to help the Vienna ophthalmologic school and to preserve its tradition would appeal to those who have had the advantage of studying there.

For this purpose, it is proposed that a fund be collected which will carry the name of ERNST FUCHS and which will have the following purpose:

To give financial aid in experimental investigations.
To help defray the cost of publications, and
To furnish money for attending congresses.

This fund is to be managed by the directors of the two University Eye Clinics in Vienna and by the chairman of the Vienna Ophthalmological Society.

Will you demonstrate your sympathy in this appeal by becoming a subscriber to this Fund?

Communications should be addressed to Dr. E. V. L. Brown, Secy., 122 South Michigan Boulevard, Chicago, Ill.

Chairman, ADOLPH BARKAN,
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PHOTOTHERAPY.

Only radiations that are absorbed—converted into other forms of energy—modify either physiologic or pathologic processes. Infrared rays that are absorbed and melt ice, or become stored chemical energy in plants, cease to exist as heat radiations. Light entering the body may be changed to heat, or may produce chemical changes. Ultraviolet rays, absorbed in the cornea or crystalline lens, may become visible rays (fluorescence), or heat rays, or cause such changes as have given them the name of "chemical rays." The various ways in which these different radiations influence vital processes are beginning to be investigated and utilized in therapeutics.

At the 1926 meeting of the Ophthalmological Society of the United Kingdom, papers were presented by Goulden on ultraviolet rays, and by Duke-Elder on phototherapy in ophthalmology. As to some tuberculous lesions the values of such therapy have been established. Goulden reported a case of tuberculous iridocyclitis, in a boy of 6; which, under other accepted modes of treatment, continued for a year and had gone from bad to worse. The left eye was enucleated. The right eye gradually degenerated and became soft, with vision of only hand movements. "As a last resort ultraviolet baths were begun. The effect was marvelous." Vision came up to 6/12, the eye became white and apparently free from active disease. In the two other similar cases the effects were equally good. In cases of phlyctenular disease and enlarged glands, the improvement under this treatment has been very striking.

Duke-Elder, who agrees with Mr. Goulden as to the result of phototherapy in tuberculous and phlyctenular conditions, dwelt more on the biological action of light and the methods for applying it. The "light bath" is general; and resembles in effect the use of foreign proteins, in improving the "chemical mechanism of defense and immunization against disease generally." But excessive doses induce a "negative phase." The best effect is secured by the dosage that produces a minimum erythema over one quarter of the body surface. The body may be divided into four areas, the front and back of the trunk, and the front and back of the lower extremities. Taking these areas in succession, one is irradiated after the other, so that the surface is exposed once in ten days. In the chronic cases, in which the method is most effective, improvement is very slow, but cannot be hastened by push-

ing the treatment beyond the limits indicated.

For local phototherapy the radiations are concentrated upon the diseased part; and may be made to produce the mild action, chiefly by infrared rays, or the destructive "abiotic action," due chiefly to the ultraviolet. The cornea has about the same sensitivity as the skin, so that the dosage may be determined by testing the erythema produced on the skin. A mild effect may be secured, as for the relief of photophobia from corneal ulcers; or the intense action producing false membranes, as for trachoma.

Duke-Elder urges that "phototherapy is by no means a panacea for every ocular disease." But he also points out: "That a large number of people, who know neither what they are doing, or what they want to do, are making indicriminate use of a method of therapy which is almost as powerful for harm as it is for good." The intelligent use of such a therapeutic resource, by clinicians familiar with the usual clinical course of the diseases they undertake to treat, will surely extend our therapeutic control of disease processes. A study of the papers above alluded to, and the discussion they elicited, will be a good way to prepare for work in this department of ophthalmology. E. J.

TIME WASTED.

A well known characteristic of the American people is a thoughtless waste of natural resources. Even in the scientific assembly of the Section on Ophthalmology of the American Medical Association was this apparent, in the lavish prodigality with which precious minutes of time are thrown away. Five hundred and ten Ophthalmologists came from the distant points of the United States to participate in the deliberations of the Section on Ophthalmology. That meeting consisted of three assemblies, commencing at two o'clock each afternon and lasting until about five thirty. Three and one-half hours or two hundred and ten minutes per afternoon, or a total of six hundred and thirty minutes of ophthalmic pabulum. Of this time, one hundred and fifty minutes were wasted—almost one-quarter of the total time.

For each session, five papers were listed, fifteen in all. The author of each paper was alloted ten minutes, to present a resumé of the important points of his communication. Almost without exception, the authors, among whom was included the present writer, either read excerpts from the original paper, or talked generalities without emphasizing or adding one iota to the information contained in the presessional volume. The fifteen opening discussions thus represent a total loss of one hundred and fifty minutes or nearly twenty-five percent of the total time of the Section.

The opening remarks of the authors could well be dispensed with and the time thus saved devoted to general discussion. Many valuable things remain unsaid; for the thoughtful fellow hesitates to take the time of the Section to bring out one single point, when the time is already overcrowded. Many a man devoting himself exclusively to private practice refrains from speaking, for fear of stealing time on the floor from the clinical teachers. Might it not be wise for the Executive Committee of the Section on Ophthalmology of the American Medical Association to abolish the opening remarks of the writers of papers that have already appeared in the Presessional Volume, and allow more time for general discussion and more time for closing remarks? H. S. G.

UNDERGRADUATE TEACHING.

A college was founded in Florida last Fall in which the method of instruction is to be that of study and conference of student and professor together. The president, a former editor of *The Independent,* contends that the worst system of instruction is the lecture. It is absurd to think that a student can have knowledge poured into him like water into a jug. Knowledge must be acquired in the same way that the lecturer acquired it, and that was by study and slow assimilation.

A better method he contends is the quiz. But even this is poor because it gives too little of the professor, and does not help the student in his most important period which is his time of preparation. At this college two hours of study with the professor is substituted for the hour of lecture or quiz; a kind of tutorial system. This was the method of that marvelous teacher, Osler. His students were taught by informal conferences. In this way Osler's scholars not only learned well, but imbibed of the personality of that great man.

More of this type of teaching is needed in ophthalmology in our medical schools. A subject is learned, not by studying from a book nor from listening to a lecture, so much as by living with it, a gradual absorption taking place. Learning from a book is apt to be like thinking in only two dimensions. An idea of words may be obtained, but often the image lacks the third dimension necessary to make it real. This completion of the idea is obtained by the actual contact with the object, be it patient or laboratory reaction. Our summary of a subject is many times as clear if the thought to be remembered is accompanied by some physical action relative to the subject. We may have read about central scotomata, but the actual plotting of one makes the impression lasting.

Perhaps the entirely sensible agitation to lengthen the medical school period, from eight and a half months to eleven, yearly, will be successful; and if ophthalmology receives its proportionate increase a real chance for contacts between student and patient may be possible. But whether the school year is lengthened or not, a division of the classes into small groups, with demonstrations in which the student takes a part, will prove the best method for implanting the maximum of ophthalmology in the minimum of time; and tho fewer subjects may be studied, a better grasp of ophthalmology will be attained than by the mere mention of twice as many subjects.

Some of our most thoughtful directors of medical education believe that much of the preliminary training, such as physiologic chemistry, physiology, etc., should precede the medical school course; and that the specialties should not be taught as such in the medical schools undergraduate departments. Admitting the wisdom of as broad a knowledge as possible of general medicine and surgery, and also the very short period for acquiring this, it does not seem that a medical education could be well rounded without a considerable understanding of the specialties. Each year they become more important as the field of each grows larger. It is not thinkable that the graduate will seek further education in more than one or two specialty branches, and this scheme would leave him without suitable knowledge of the others. The best course would, therefore be, to include all but one of the summer months in the curriculum and increase proportionately the undergraduate hours of study of the specialties.

L. T. P.

THE OPHTHALMIC YEAR BOOK.

At the 1926 meeting of the American Medical Association, at Dallas, a paper on The Ophthalmic Year Book was presented to the Section on Ophthalmology by Dr. William H. Crisp. The paper was printed in the Presession Volume and in the Transactions of the Section. After the presentation of this paper a Joint Committee was constituted, by action of the Section on Ophthalmology and subsequent action of the American Ophthalmological Society and the American Academy of Ophthalmology and Oto-Laryngology, consisting of one representative from each of these national organizations.

This Committee has investigated the cost of preparing, printing and distributing the Year Book; and finds that for 2000 copies it is fully $10,000, and could not be much less if only one-tenth of this number were called for. The Ophthalmic Publishing Company has borne this cost, supplying a copy to each of its subscribers. But, with the greatly increased cost of printing and binding, the Company finds the

expense prevents needed extensions and improvements in the American Journal of Ophthalmology; and agrees that the Year Book ought to be placed on an independent, self sustaining basis. This would require subscriptions amounting to at least $10,000 a year, or a permanent endowment fund of $200,000.

In attempting to secure permanent support for the Year Book, it is of first importance to ascertain how many use the Ophthalmic Year Book. What do they use it for? How much is it worth to them? In other words how much will they give to have it continued? To get this information return postcards are being sent to all who have been receiving the Year Book. On the returns received from them, it will be possible to decide if the Year Book should be continued and how this can be done.

It is quite possible that support can be obtained outside of the profession; but such support will depend on what use is made of the publication, and how much those who use it are ready to give to continue it.

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OPHTHALMIC YEAR BOOK,
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BOOK NOTICES.

An Illustrated Guide to the Slit Lamp. T. Harrison Butler. Cloth. 144 pages, 158 illustrations in text and 5 colored plates. Oxford University Press, 1927.

Of the books on the slit lamp which have appeared in the last seven years, this one should have, perhaps, the widest appeal to American ophthalmologists. The text is simple enough so that one who has never seen a slit lamp can understand every word, in contrast to that of Koeppe's more exhaustive work. The method of a running text illustrated by drawings, is easier to follow than that of Vogt's Atlas, in which much of the text is a description of illustrative cases. The illustrations, while not so numerous or technically perfect as in Vogt's work, are very good, and the semidiagramatic method used in some of them has obvious advantages for clearness. It is in the illustrations that Butler's book has its principal advantage over the simple and practical handbook of Koby. In addition, this is a new book; which contains, along with a suitable account of the earlier observations, descriptions of some important contributions to slit lamp microscopy made by English observers, notably by Graves and the author himself.

Beginning with a concise description of the Zeiss slit lamp, which should perhaps be supplemented by a notice of some different features of the Bausch and Lomb instrument, a clear account of the different methods of illumination is given. This is illustrated by several valuable diagrams, including one showing illumination by "sclerotic scatter" as described by Graves. The beam is thrown on the limbus, when the light is reflected between the two surfaces of the cornea, so that the whole cornea becomes "relucent" and any opacities present may be seen at a glance. Emphasis is placed on the importance of accurate localization and measurement, and the principal methods are described.

Chapters on the cornea, anterior chamber, iris, lens, retrolental space and vitreous, include concise descriptions of most of the important conditions previously described, especially by Vogt, with well chosen illustrative drawings of personal cases. The figure of keratitis epithelialis superficialis was interesting to the reviewer because of its resemblance to the picture of epithelial dystrophy of the cornea; and in describing it, the author properly insists on the value of retroillumination in discerning small vacuoles in the epithelium. The reaction of the lesion to stains is not described. A distinction is made between disciform keratitis, in which the cornea shows a localized thickening, and other keratitides in which this is absent. An interesting observation is that of the increase of the crater like areas on the

endothelial surface in disciform keratitis, most of which later disappear, showing that they can not all be Henle's warts, as has been supposed. In two cases of interstitial keratitis the author saw cells in the aqueous of the previously unaffected eye before any other signs of keratitis were present. A good colored picture of Krukenberg's spindle, a deposit of pigment on Descemet's membrane, is given, and one of the Kayser-Fleischer ring as seen in Wilson's disease, in which a hepatic disturbance is apparently responsible for the golden deposit on Descemet's membrane.

The importance of detecting the increased relucence of the aqueous, which the author calls "flare" and which denotes an increased protein content, is emphasized. It is the earliest sign of inflammation; but in progressive inflammation, will soon be followed by the presence of cells in the aqueous, whose detection may demand most careful search. The finding of these cells in the second eye, as the first sign of sympathetic ophthalmia, is one of the most valuable services of the slit lamp; and the author believes that such evidence has lead to his saving six eyes during three years. The cells are also seen in the vitreous and retrolental space, before other characteristic signs of sympathetic disease develop.

Besides the common occurrence of increased "flare" and cells in the aqueous, the presence of a clear coagulum containing threads of fibrin is sometimes seen, and always, in the author's experience in cases of gonococcal iritis. In the chapter on the iris, an observation which I have not seen elsewhere is that of a swelling of the nodules or "mamelons" of the pupillary border, observed in diabetes, which signifies a degeneration of the posterior pigment layer.

The lens is the happy hunting ground of the slit lamp microscopist, and Butler's treatment of it is a satisfactory one. Good figures illustrate the suspension of the lens and abnormalities of the zonula. The detachment of the zonular lamella of the lens in glass blowers' cataract, as recently described by Elschnig, is figured; and Butler has seen a similar detachment in shrunken lenses. He shows how the lens sutures may be observed with the loupe and an ordinary light. While normally the anterior Y-suture is erect and the posterior inverted, he has seen one case of apparently erect posterior Y and another in which a double posterior Y was present. Cases of family, embryonal, nuclear cataract are figured, one of which is interesting as being smaller than the Y-sutures, denoting a disturbance very early in fetal life.

A distinct retrolental space is normally present between the lens and vitreous, and cases are illustrated in which this remained empty after discissions, so that by careful needling it would be possible to open the posterior capsule without obtaining prolapse of vitreous into the anterior chamber.

In a brief chapter, the value of the slit lamp in medicolegal cases is discussed. In one case the finding of a second scar in the cornea, of an injury case, lead to the finding of a second piece of steel in the eye; which was evidently received in an injury subsequent to the one under consideration. The author believes that a slit lamp examination will come to be required in all medicolegal cases.

While intraocular tumors are usually so deep as to be inaccessible to the slit lamp without special appliances and technic, valuable evidence is given by the absence of inflammatory signs in most tumor cases, and in one case examination of a mass behind the lens indicated the correct diagnosis of pseudoglioma instead of glioma.

In a chapter on slit lamp technic applied to simple apparatus, the author's pocket slit lamp which may be used on patients in bed or in the home, is described. With it lesions may be localized on the anterior or posterior surface of the cornea, and in the lens, and the depth of the anterior chamber may be gauged.

From the few excerpts quoted, it will be seen that this book not only fulfills its purpose as a guide to those learning to use the slit lamp, but that it contains information and illustrations that

should prove of interest to the most experienced veterans of slit lamp microscopy. Aside from two or three minor misprints, the printing of text and illustrations is excellent.

S. R. G.

Quarterly Cumulative Index Medicus, Volume I, Number 1, January-March, 1927. Paper, quarto, 396 pages. Chicago. American Medical Association.

This is a piece of literary team work. The Index Medicus has been published for 48 years with varied support, recently by the Carnegie Institute of Washington. The Quarterly Cumulative Index has been published for 11 years, by the American Medical Association. Now they are combined, for joint publication under the supervision of an Editorial Staff including Morris Fishbein, M.D., and Marjorie Hutchins, librarian, for the American Medical Association; and Fielding H. Garrison, Lt. Col. M. C. of U. S. Army, and Albert Allemann, M.D., Principal Assistant Librarian, for the Surgeon General's Library. An advisory Board of three represents the A. M. A., the Surgeon General's Library and the Carnegie Institute of Washington. Each number is to cover the medical literature of the preceding three months. But the second and fourth numbers will include the contents of the first and third numbers, respectively, and will be bound in cloth. For permanent reference this publication will then consist of two volumes a year.

After a preface explaining the plan this volume contains: A list of books published in the first three months of 1927, arranged alphabetically by author's names. Then comes a classified list of these same books, in which those on the eye, ear, nose and throat are classed together. After this comes a list of publishers and then the list of journals indexed, filling 8 pages with names of over 600 journals. A page of instructions, which should be read by every one who intends to use the Index, precedes the real "Quarterly Cumulative Index Medicus."

This is a work for reference. No one will read it thru, as he might a text book or a monograph, but in hunting for papers on a particular subject, or the paper of a certain writer, one cannot fail to be reminded of the great extent of the literature of medicine and the amount of educational reading that invites his attention. It is impossible here to give a list of all the subjects that should interest the ophthalmologist; but a few can be mentioned, that he must study to some extent to keep abreast with the advance of the specialty he undertakes to practice. Such topics, each with several papers, that should attract his attention in looking over each issue of this index are: Aqueous humor, Asthenopia, Astigmatism, Atropin, Cataract (19 papers), Choroid, Color Perception (6 papers), Eyes (93 papers), and so on down to Vision (19 papers) and Vitamins with 37 papers.

The cross references are an important feature of this index; as from iris to uvea, retina to macula lutea; or, under eyes, accommodation and refraction to astigmatism, glasses, myopia, presbyopia, etc. These cross references largely eliminate the danger, in using any index, of not choosing the right word to look for. They are like intersecting roads with sign boards, that indicate how you can proceed most directly to your destination. The whole is a double index, giving both topics and author's names; so if you know what a paper is about, or only know an author's name, you can proceed quickly to the complete reference.

Not only does such an index give its user a command of the recent literature of a subject, or subjects, in which his main interest lies; it opens up to him the whole range of topics in medicine. Something previously of little apparent interest to the ophthalmologist, as the secretion of the parathyroid glands, may suddenly become important to him. This index will enable him quickly to find the available, interesting and important papers, that have recently appeared in journals and the proceedings of medical societies. Such a resource for taking up new lines of study leaves little excuse for ignorance of any current facts that the specialist should know.

E. J.

The Present Status of the Neurology of the Eye. A supplement to Wilbrand and Saenger's Neurology of the Eye. **Prof. Dr. H. Wilbrand** and **Prof. Dr. Carl Behr.** Part I. The Lids, Lacrimal Apparatus, Trigeminus, Pupil, Accommodation, Heterochromia and Sympathetic. Paper, 208 pages, 9 ill. Munich: J. F. Bergman, 1927. Price 21 Marks.

Over twenty years have elapsed since the appearance of the first volume of Wilbrand and Saenger's monumental work on the Neurology of the Eye. The rapid progress in ophthalmology and neurology during this time has rendered some of it obsolete, altered our conceptions of other parts, and introduced new data, while leaving the greater part still the authority on the subject. Owing to the increased costs of publication, and the fact that the greater part of the previous text would be unaltered, it was decided not to publish a new revised edition; but to supplement the former by one which would bring the subject up to date, and at the same time be complete enough not to be dependent on the previous work. The place of Prof. Saenger has been well filled by Prof. Behr.

The present work comprises 288 pages, including the table of contents and the indices. The references that follow each chapter are arranged as they appear in the text, and not alphabetically; but this is compensated for by the fact that there are indices of both authors and subjects. The printing is very good and the principal subjects are printed in bold face type, attracting the attention at once. The principal chapters, which are very freely subdivided are: I, The Relation of the Nervous System to the Lids, 76 pages; II, The Lacrimal Secretion, 1 page; III, The Nervus Trigeminus, 67 pages; IV, The Pupil, 84 pages; V, The Accommodation, 12 pages, VI, Heterochromia, 10 pages; VII, The Sympathetic, 15 pages.

To those who have the original work, the present one will come as a welcome addition to their libraries; while those not so fortunate, will find in it a valuable storehouse of knowledge. C. L.

Hemianopic Syndromes in Cephalomalacia. S. Schiff-Wertheimer. Paper, 157 pages, 2 colored plates and 38 illustrations in the text. Published by G. Doin et Cie, Paris, 1926. 30 F., 80 cents.

This book deals with a special group of hemianopsias, viz. those due to cephalomalacia. The main part of the work is divided into eight chapters, as follows: I, The normal anatomy of the retrochiasmatic optic paths, 22 pages; II, The blood supply of the optic paths, 9 pages; III, Methods of examination, 10 pages; IV, Hemianopic syndrome from lesion of the posterior cerebral artery, 29 pages; V. Hemianopic syndrome from lesions of the Sylvian artery, 26 pages; VI. Hemianopic syndrome from lesion of the anterior choroidal artery, 8 pages; VII. Isolated hemianopsias, 10 pages; VIII. Hemianopsias from intracranial disseminated sclerosis, 6 pages. These chapters include case reports illustrating the various conditions, which are supplemented by a chapter devoted to case reports comprising 16 pages. The author's conclusions are summed up in 7 pages, and this is followed by 7 pages of blibiography and one of table of contents. There is no alphabetic index.

The subject of hemianopsia is one of the most interesting branches of ophthalmology and the information contained in this book is a valuable addition to our knowledge.

C. L.

The Tuberculosis of the Eye and Its Appendages. E. Rollet and **A. Colrat.** Pasteboard. 296 pages, 24 illustrations and 4 color plates. G. Doin et Cie, Paris, 1927.

This book is a part of the Bibliotheque de la Tuberculose, of which 9 volumes have been published. A compendium on tuberculosis, the authors state, should include a volume on the eye, because the general physician should know the ideas of oculists concerning the etiology and treatment in this field, while oculists should get away from the thought that the "eye is a closed cavity isolated from the rest of the body." "Ocular tuberculosis in the great majority of cases,

is only a special manifestation of a deeper lesion, of which it should warn."

The introduction briefly reviews the history of ocular tuberculosis and describes the plan of the work, which is divided into eight chapters. At the head of each chapter there is a brief outline of its contents. For example in Chapter I, 18 pages, Tuberculosis of the Cornea, there are nine divisions, as follows; historical, etiology, pathology, experimental reproduction, pathologic anatomy, signs and clinical forms, prognosis and evolution, differential diagnosis, treatment. There is no reference, however, to the page on which each section appears. Likewise, altho there are numerous references in the text, and a bibliography at the end, of 26 pages, these are not numbered, and there is no way of deciding which of two or more papers by an author is referred to. There is both a subject and an author index.

Chapter II, 15 pages, deals with Tuberculosis of the Sclera; III, Tuberculosis of the Uveal Tract, 105 pages; IV, Tuberculosis of the Retina and Vitreous, 5 pages; V, Tuberculosis of the Optic Nerve, 4 pages; VI, Tuberculosis of the Lids and Conjunctiva, 4 pages; VII, Tuberculosis of the Lacrimal Glands, 7 pages; VIII, Tuberculosis of the Lacrimal Passages, 58 pages.

The possibility of a tubercular etiology is present in so many ocular conditions that any review increasing our knowledge, such as this book furnishes, is very welcome.

C. L.

Ocular Histobacteriologic Technic. Y. d'Autrevaux. Paper, 157 pages, 24 illustrations. Published by G. Doin et Cie. Paris, 1927. Price 30 F., 80 cents.

This book is one of the series of the Bibliothèque d'Ophtalmologie, and deals with the methods of preparation of histologic and bacteriologic specimens for microscopic work. It is intended for those who desire to do their own microscopic work. This purpose it fulfills well for those who can read French, and would make a worthy subject for translation. The illustrations are confined to the apparatus employed. Contrary to the usual custom, the table of contents is in the back of the book, just before the alphabetic index, which is quite complete. The titles of the 15 chapters give a good survey of the subject matter. They are: I, Source of specimens, 2 pages; II, Fixation and lavage of specimens, 4 pages; III, Dehydration and mounting, 12 pages; IV, Sectioning, 6 pages; V, Mounting of sections, 6 pages; VI, Staining of sections, general technic, 8 pages; VII, Staining celloidin sections, 18 pages; IX, Resume of usual methods and rapid methods, 6 pages; X, Impregnation, 12 pages; XI, Depigmentation, 2 pages; XII, Decalcification, 2 pages; XIII, Special methods, 20 pages; XIV, Smears, 12 pages; XV, Aqueous, 11 pages.

C. L.

Report of the Government Ophthalmic Hospital, Madras, 1926. Lt.-Col. R. E. Wright, M.D., I.M.S. Paper, quarto, 34 pages, 6 plates, 15 illustrations. Madras, Government Press.

This year six pages are devoted to administration, and the balance including the plates to Professional Report. The statistics show an increase of patients over numbers of preceding years. There were in-patients 3,898; out-patients 23,412; Operations 5,266, of which 1,601 were for senile cataract.

The percentage results of cataract operations were: With capsulotomy, successes (V. = 6/30, or better) 89.58; partial successes (V. = 6/36 to 2/60) 5.72; partial failures (V. = 2/60 to hand movements) 3.52; and failures 1.09 percent. Of removal of the lens in its capsule, 3 by the Smith method and 21 by phacoerisis, gave 17 successes, 3 partial failures and 2 failures. Col. Wright says "Even in selected cases, in expert hands, the intracapsular operation offers more risk at the time of operation and during the first week after operation than does capsulotomy." But the publication of Knapp's statistics of late results, has caused him to believe that "successful removal of the lens in capsule may

leave the patient with a perfectly sound eye for many years." There is a notable report based on bacteriologic investigation of iris tissue, removed during routine cataract extraction.

Trephining, the preferred operation for glaucoma, was done in 96 cases, of which 79 were primary. In these primary cases, vision and tension were improved in 21 cases, and tension only, in 35. Most of the plates are reproductions of photographs and radiograms of tumor cases, and one plate shows microphotographs of blood in lymphoblastoma. E. J.

An Outline History of Ophthalmology. Thomas Hall Shastid, Duluth, Minn. Cloth, 32 pages. Published by the American Optical Company, Southbridge, Mass. 1927.

This little book is a reprint of a paper read before the Minnesota Academy of Ophthalmology and Oto-Laryngology, May 14, 1926. Written in Dr. Shastid's lucid style, it reveals the high lights in the progress of our science from the time of Hammurabi 2250 B. C., to the invention of the tonometer in our days. Credit for discoveries and inventions is given to the various men whose names are milestones in ophthalmology. It is refreshing to stop for a few moments and see thru the eyes of Dr. Shastid the long road down which we have come to the pleasant valleys that now surround us. Every ophthalmologist should read this book and learn how truly he is "Heir of all the ages."

C. L.

Transactions of the Ophthalmological Society of the United Kingdom, Volume 46, 1926. Cloth, 8 vo., 462 pages, 9 plates, 51 illustrations in the text. Published by the Society, London, J. and A. Churchill, 1927.

In general scope and form, this volume resembles the others that have preceded it in the series. There are 52 pages of lists and preliminary matter. Then comes the Presidential address by Sir John Parsons, followed by a discussion on Birth Injuries of the Eye, including four opening papers, one with bibliography, with remarks by eight discussers, making 66 pages. A second discussion on Intra- and Extra-ocular Melanomata, with three opening papers, and nine in discussion, occupies 62 pages. The other proceedings of the annual meeting, including ten papers, occupy 100 pages. Communications made to the affiliated societies number 36, and occupy 160 pages; and the index completes a very valuable book of reference.

There are several outstanding features of this volume that arouse interest, and will call for rereading on the part of those who are trying to keep in touch with the advances of ophthalmology. The Presidential address points out the ophthalmic interest of biology. It suggests "the problem of the sight testing optician is not insoluble;" and points put that research "has a broadening influence so necessary to the specialist."

The bane of specialism is isolation and its cure is cooperation. The two discussions above referred to must be read by every one who wishes to have an up-to-date acquaintance with the subjects of them; and the same is true of the paper on Siderosis by M. S. Mayou, and the discussion on Sympathetic Ophthalmia before the Oxford Congress, and the Doyne Memorial Lecture by Thomson Henderson on the "Anatomy and Physiology of Accommodation in Mammalia."

Every reader who wishes to make himself a worthy practitioner of ophthalmology should have this volume to read and refer to. The more isolated his position and the smaller his library, the more important it is for him to keep this kind of touch with the practical, thinking and forward looking, scientific interest of British ophthalmologists. E. J.

Pacific Coast Oto-Ophthalmological Society, Transactions for 1926. Paper, 8 v., 144 pages, 50 illustrations. Published by the Society, Walter F. Hoffman, M.D., Secretary, Seattle, 1927.

Of the 18 papers published in this volume, 8 belong strictly to ophthal-

mology, and 2 consider its relation to other branches of medicine. Of the latter, one by Dr. Hans Lisser, Chief of the Endocrine Department of the University of California, deals with the role of the ophthalmologist and otorhinolaryngologist in the diagnosis of ductless gland diseases. The other, by Dr. Ray Lyman Wilbur, former president of the American Medical Association, discusses medical education in relation to the specialist.

There are also three brief obituaries that bring to the attention of the reader men not well known to their colleagues, because of their isolation from medical centers and professional gatherings. But these men had studied ophthalmology in Philadelphia, St. Louis, Chicago, Boston, Vienna, Berlin and Kiel; and had sufficient energy and initiative to carry this branch of medicine into places where its application was needed. Broadly, and in the best sense, their lives were successful.

Some of the more important scientific papers relating to ophthalmology have already been published in the A. J. O. Among the papers not so published is one on the practical use of the slitlamp; which, with the discussion brought out, constitutes an excellent introduction to this recent extension of ophthalmic diagnosis. There are equally valuable papers relating to the domain of otolaryngology. The worker in these specialties, living in the western half of the United States, should join this organization and attend its annual meetings; and, wherever he lives, he needs its transactions in his working library.

E. J.

Relation of Venereal Diseases to Vision, and Venereal Disease Control. American Health Congress Series, Volume IV. Paper, 8vo., 75 pages. New York, National Health Council.

In 1926, there was held in Atlantic City the American Health Congress. There were joint sessions of the American Social Hygiene Association, with the National Committee for the Prevention of Blindness, and with the American Public Health Association. At each of these, four papers were read. At the first these were, Why Have Ocular Disasters, by Thomas B. Holloway, and on Syphilis of the Eye, by Prof. John H. Stokes of the University of Pennsylvania; on Gonorrheal Invasion of the Birth Canal—Its Menace to the New Born, by Prof. Bland of Jefferson Medical College; and on Prevention of Ophthalmia Neonatorum Thru Organized Child Hygiene, by Julius Levy of the New Jersey State Board of Health. These proceedings are available on application to the National Committee for the Prevention of Blindness, 370 Seventh Avenue, New York City.

E. J.

CORRESPONDENCE.

Oxford Course for Diploma in Ophthalmology.

To the Editor:

Having just returned from Oxford, England, where I completed the course for and obtained the Diploma of Ophthalmology given by Oxford University, I thought some of your readers would be interested in my experience there.

The course is given annually, during Hilary term, i. e., from about the middle of January to the middle of March each year. It is open to qualified ophthalmologists, who have spent a year in a recognized eye hospital of at least ten beds devoted exclusively to eye cases, and whose other general medical qualifications satisfy the authorities. The admission requirements are high and great care is taken to investigate each applicant. There is no limit to the number of men accepted, but the classes average around eight, most of whom are Englishmen, or Colonials. The D. O. is highly desired and ranks with the D. O. M. S. as nearly essential for hospital appointments.

As for the course itself: It consists of lectures and demonstrations in Anatomy, Optics, Physiological Optics, Medical Ophthalmology, some Slit Lamp Microscopy, Pathology and Embryology; and laboratory work in Pathology and Optics. There is little clinical work, since the eye hospital is

a small one and only two days are set aside for the examination of patients. However, on those two days the clinic is crowded; and it is extraordinary how many rare and unusual eye conditions were encountered during the course, among them being Doyne's honeycomb choroiditis, congenital pigmentation of the retina, several cases of superficial punctate keratitis and diffferent congenital anomalies.

The course on anatomy was given by Dr. Carleton, who has succeeded Whitnall in that department, and a splendid lecture by Prof. Thompson on the "scleral spur" was also included. The course consisted of a general review of the central nervous system and anatomy of the orbit, illustrated by many lantern slides and beautiful dissections, many of which Whitnall had used to illustrate his book.

The course on Pathology consisted of lectures by Collins and Mayou, following their textbook rather closely and lantern slides of ocular pathology which were numerous and instructive. There were also numerous microscopic sections and gross specimens to study. These formed a splendid collection since many men from all England have sent their prize specimens to Oxford for study by the students.

Miss Ida Mann gave a series of lectures, illustrated by lantern slides, on the embryology and congenital defects of the eye. She presented this difficult subject in a very clear and interesting fashion, so that one could not help but gather the essential details at least. If this had been all there had been to the course, it still would have been extremely worth while to me.

The course on Optics was given in the physics laboratory and consisted of lectures on light reflection and refraction. The laboratory work was made up of experiments in rays of light and their behavior on mirrors, prisms, plane glass, and lenses. The course on Physiological Optics consisted of lectures on the essential points including general physiology of the eye and a few demonstrations. Harrison Butler gave a few excellent lectures on the slit lamp; and Dr. Stobie a series of lectures on medical ophthalmology which were exceedingly helpful. Mr. Adams, the Reader of Ophthalmology there, and Master of the Oxford Congress, supervised the course and gave several splendid informal talks on different subjects from a practical and clinical viewpoint. He is superb with the ophthalmoscope.

The fees are reasonable £17 ($85) for the course and use of the hospital and £15 ($75) for the examination. The examination is a rigid one, as you may see from the following questions. More than just a passing mark is required to get the Diploma, since it is what is known in England as an "Honors examination." In addition to the written papers there was an oral examination lasting half hour, fifteen minutes with each examiner, and a clinical examination during which four or five cases were examined and questions regarding them asked. Everything pertaining to ophthalmology could thus be covered and a man's weak points discovered. I assure you it was quite an ordeal. The written papers and the times given were as follows:

Monday, March 21, 1927.

GENERAL MEDICINE. 9:30-11 A. M.

1. What precautions would you take before operating on a case of Diabetic Cataract? Give the general treatment, both before, during and after the operation.

2. Discuss the general infections which give rise to Metastatic Suppuration in the eye.

3. What are the symptoms of acute Pemphigus? In what way does the disease affect the ocular structures, and how would you combat its effects?

DIOPTRICS. 11 A. M.-12:30 P. M.

1. What are the degrees of binocular vision; and in what way does the degree present affect the vision required for various occupations?

What is meant by "the master eye?"

2. What are the varieties of Astigmatism? In what structures of the eye and in what manner can it be produced?

3. How do you measure the size of retinal images, and how are they influenced by Hypermetropia and Myopia?

PATHOLOGY. 2-5 P. M.

1. What is Anaphylaxis? Discuss the conditions in the eye which it is supposed to influence.
2. What are the varieties of Microphthalmos? How do you account for their production?
3. What is Xerosis of the Conjunctiva? In what disease does it occur? Describe the characteristics of the Bacillus Xerosis.
4. Enumerate the varieties of Cataract, and the parts of the lens which they affect.

Tuesday, March 22, 1927.
9:30 A. M.-12:30 P. M.

DIAGNOSIS, ETIOLOGY, TREATMENT.

1. What are the changes that the various structures of the eye undergo as a result of "age?"
2. Discuss the etiology, diagnosis, symptoms, and treatment of Conical Cornea.
3. Discuss the etiology, diagnosis, and treatment of Orbital Cellulitis.
4. What are the symptoms, diagnosis, and treatment of inflammation in Tenon's Capsule.

Regarding living conditions in Oxford, I found them very pleasant, altho to an American accustomed to warm houses it was a little trying at times. Expenses are not great, in fact less than any city here, and board and lodgings not hard to find. Nothing need be said about the beauty of Oxford itself and the many interesting sights and excursions one could make in and around the town. All the professors were exceedingly kind to me and Dr. Adams went out of his way to help me. I feel certain that they would be pleased to have Americans in their courses.

If one is interested to obtain any further information, he should address Mr. P. E. H. Adams, 6 Holywell Street, Oxford, England, who would supply him with other data.

DERRICK T. VAIL, JR.
Cincinnati, Ohio.

ABSTRACT DEPARTMENT

Reprints and journal articles to be abstracted should be sent to Dr. Lawrence T. Post, 520 Metropolitan Building, St. Louis, Mo. Only important papers will be used in this department, others of interest will be noticed in the Ophthalmic Year Book.

Dumas, G., Lamache and Dubar. Variations in Retinal Arterial Tension under the Influence of Emotion. Soc. de Biol., 1927, Jan. 22. Abst. Gaz. des Hôp., 1927, v. 100, p. 271.

Under the influence of provoked emotion, there is a great elevation of retinal arterial tension, especially during systole, directly proportional to the intensity of the emotion. These changes can be used as indices of intracranial changes caused by nervous shocks. C. L.

Elschnig, A. Bacterioscopy of the Normal Conjunctival Sac. Klin. M. f. Augenh., 1926, v. 77, p. 22. Supplement.

The author describes his method of examining the conjunctival sac for microorganisms before eye operations, which has proved superior to any other. Sterile human serum in bouillon is instilled and spread over the conjunctiva of the upper and lower lids and then drawn into a glass tube and brought into culture fluid. After 24 hours the sediment is placed on a slide, drawn thru a flame and stained with carbol-methylene blue for microscopic examination. C. Z.

Scholl, Emil. Pathology and Pathogenesis of Chalazion. Archiv f. Ophthalmol., 1926, Band 117, p. 662.

The first sign of change in the meibomian gland leading to chalazion is an infiltration of the acinus wall with polymorphonuclear leucocytes which wander from without toward the lumen. Next the sebaceous cells show signs of degeneration as dissolution of the nucleus, indistinct outline and breaking up of the sebum or fat into small drops. At the same time in addition to polymorphonuclear leu-

cocytes there are found in the acini lymphocytes, endothelial leucocytes and plasma cells with marked fat phagocytosis. In the middle of the thickly infiltrated parts there are found spherical structures, which are separated from their surroundings by a few connective tissue fibers. These spherical structures contain many endothelial leucocytes, plasma cells, fibroblasts, lymphocytes and isolated polymorphonuclear leucocytes; in addition many of these structures show especially well formed large giant cells with many nuclei. Stains for fat show these giant cells to contain fat in the tiniest droplets. This more or less dense cellular infiltration forms the principal part of the chalazion. Drops of fat lie extracellularly in the lymph spaces and intracellularly in the infiltrating cells. Holes or empty spaces are found in these infiltrated parts.

To determine the part the fat played in the formation of the chalazion, the author injected vernix caseosa from the skin of the new born under the skin of the ear of rabbits. Wheals were thus formed which were excised after 3, 8, 14 days, 1 month and 3 months after the injections. Histologic examination of these wheals revealed the same progressive inflammatory changes as had been observed in the human chalazia.

The author concludes, therefore, that after blocking of the duct of the meibomian gland the further changes in human chalazia probably result from chemical irritation and destruction due to the blocked sebum or fat.

H. D. L.

Imre, J. Protecting Glasses with Thin Metal Layers. Klin. M. f. Augenh. 1926, v. 77, p. 464.

The author recommends for protectors, glasses with thin layers of gold or platinum which transmit from 10 to 20 percent of the visible rays and keep out the heat rays, not by absorption but by reflection. In tuberculous eye affections silver protectors are indicated. These exclude long wave lengths but transmit ultraviolet rays in greater quantities. C. Z.

Clarke, E. Coloboma at the Macula. Brit. J. of Ophth., 1927, March, v. 11, p. 97.

Clarke observed this condition in a child. There has been no material change in appearance during the succeeding thirty years. In each macular region there is a large defective area about two and a half by two discs in extent. In the center is a disc sized, pearly white region surrounded by patches of pigment. Vision is 6/24 with the right eye with minus 11 D. sph. and with left eye with minus 5-6 D. sph. reads J. 2. He went normally thru school receiving a college degree. According to Ida Mann's classification, it is a sequel of a destructive inflammatory process. Treacher Collins believes it is an atypical coloboma caused by arrested development. The author refers to Goulden's case in which the condition was present in a microphthalmic eye. Three illustrations accompany the report. D. F. H.

Mann, Ida C. Abnormal Conditions of Macular Region Usually Classed as Colobomas. Brit. J. of Ophthal. 1927, March, v. 11, p. 99.

In a carefully prepared discussion of this subject, the author refers to three main clinical types in their order of frequency; the pigmented; the nonpigmented; and the macular coloboma associated with abnormalities of blood vessels. Referring to the mode of production, of the two hypotheses advanced, developmental and pathologic, the author believes the former untenable. To prove this assertion, the writer discusses in great detail the embryology, histology and pathology of the subject.

She summarizes by stating that all the types of socalled macular coloboma so far observed can be brought under one heading only by postulating the occurrence of intrauterine choroiditis. The exact type of defect produced depends on:

(a) The time during development at which the lesion occurred, and

(b) The nature of the inflammation, i. e., whether destructive or irritative.

The diagnostic tests to be applied are:

1. The presence of normal retinal vessels over the defect. This points to an irritative affection after the sixth month.

2. The presence of ectasia and absence of retinal vessels. This points to a more destructive process, with or without an earlier onset, e. g., fourth to fifth month.

3. The persistence of one of the vasa hyaloidea propria. This is diagnostic of a process occurring before the end of the third month.

Three drawings of clinical cases and three microphotographs accompany the contribution. D. F. H.

Pitsch, K. Bone Formation in the Lens. Klin. M. f. Augenh., 1926, v. 77, p. 636.

A woman, aged 31, had phthisis of the right eye from earliest childhood. She wore a prosthesis which kept up a permanent slight irritation. On account of a recent inflammation with precipitates, the eye was enucleated. The site of the lens was occupied by a body that consisted of accumulations of calcium and true bone tissue and was in connection with the cyclitic pseudomembrane. The pathogenesis was undoubtedly a complicated cataract. C. Z.

Friede, R. Criticism of Staining of the Cornea with Gold Chlorid. Klin. M. f. Augenh., 1926, v. 77, p. 113. Supplement.

After curetting the conjunctiva of the upper lid of an albino, aged 14, 5 percent gold chlorid solution in a cotton sponge was held on the surface for 6 minutes coloring the lid like black patent leather. After a week, disclor-ation began and the cornea developed parenchymatous keratitis, which left the eye in a serious condition for weeks. On account of these complications and the short duration of the staining, gold chlorid is not to be recommended in such cases.

C. Z.

Offret, A. Galvanocauterization in the Extraction of Foreign Bodies from the Cornea and Conjunctiva. Anales d'Oculist., 1927, Mch., v. 164, p. 214.

Superficial foreign bodies of the cornea when surrounded by an area of dead tissue or rust may be easily removed with the fine point of the galvanocautery. In the deeper foreign bodies the overlying layers of the cornea are easily destroyed with the cautery and the foreign body removed without danger of forcing it into the anterior chamber. In subconjunctival foreign bodies when the cautery is used they do not slip around as they do under a forceps or spud. After fixation with the cautery they are easily removed. Intrascleral bodies may be removed in the same manner as intracorneal bodies. The method has been used satisfactorily for two years.

M. F. W.

Ping. Reflex Orbital Conditions of Dental Origin. Soc. de Stomat. de Paris, 1927, Jan. 17. Abst. Gaz. des Hôp., 1927, v. 100, p. 612.

The case was one of right sided ptosis with diplopia following extractions of a canine tooth on the right side, which was cured by curetting the alveolar process. C. L.

Jaensch, P. A. Observations on Hydrophthalmus. Archiv f. Ophthal. 1927, B. 118, p. 21.

In great detail, the author reviews the entire literature of congenital hydrophthalmus covering 102 references. In addition, he describes the clinical and pathologic findings in ten eyes with this disorder from his own practice. The anatomic findings in his own cases supported the opinion of Reis and Seefelder that the cause of the disease was not a uniform condition. It can apparently arise upon the basis of entirely different conditions and, therefore, presents a definite multiplicity of forms in the different anatomic preparations.

As to therapy, a purely medical one is useless in hydrophthalmus; surgically, iridectomy and trephining appear to be of the same value altho in

the case of the latter the danger of late infection is present. Of the 55 operated cases, there were 18% with good results, 23% satisfactory results and 59% failures. H. D. L.

Jaensch, P. A. Ocular Symptoms after Epidemic Encephalitis. Klin. M. f. Augenh., 1926, v. 77, p. 813.

The author reports on 68 cases observed in the eye clinic at Breslau. Aside from hyperemia of the disc in the acute cases only three of papillitis and two of left sided homonymous hemianopsia were seen. The majority of changes were affections of the nuclear region, supranuclear paths and the larger ganglia. Diplopia was mostly due to disease of the exterior muscles. The prognosis of postencephalitic eye symptoms in general is favorable. The myostatic immobility, however, is irreparable and of unfavorable prognosis. C. Z.

Bremer, F. and Coppez, H. Angiospasm of the Central Nervous System. Archiv. d'Ophtalmologie, 1927, Feb., v. 44, p. 88.

The arteries of the retina and brain possess no vasomotor innervation and are thus insensible to vasomotor stimulation and adrenalin, but they respond with vigorous contractions to mechanical or chemical stimuli. These spasms may be classified etiologically and pathologically as follows:

1. Spasm caused by local alteration in the vessel wall as atheroma or specific arteritis.
2. Spasm associated with the syndrome of Raynaud.
3. Spasm caused by exogenous intoxication, as lead, quinine, and nicotine.
4. Spasm caused by endogenous intoxications; Bright's disease, essential hypertension, migraine, and epilepsy.
5. Nervous spasm caused by emotion and anxiety.

Permanent damage may result from the vessel spasm, if it is permitted to last over a long period, due to the ischemia. The treatment is symptomatic using benzyl benzoate for its vasodilating properties and luminal in cases with migraine and anxiety neuroses. The results of such treatment are usually good. M. F. W.

Nonay, T. Hypotony from Luetic Tumor of Hypophysis. Klin. M. f. Augenh. 1926, v. 77, p. 821.

Hypotony of 8 mm. Hg. of both eyes showing neuritic atrophy, in a girl aged 24, who had been in a blind asylum for a year, led to an endocrine examination. This revealed a tumor of the sella turcica apparently due to congenital lues. Vision of right eye was uncertain perception of light and left 2/20, with contraction of the visual fields. Injections of bismoluol gave a wonderful result. Vision rose to 5/7 with improvement of the visual fields. C. Z.

Butler, T. Harrison. Combined Strabismus Hook and Muscle Clamp. Brit. J. of Ophthal., 1927, March, v. 11, p. 123.

The author has devised an instrument with a hook similar to a strabismus hook which is pierced by three holes. A second hook with three pins, which registers with the holes, slides on the first. When pushed home it is automatically locked by a clamp in the handle which is released by pressure on a spring button. The instrument is especially designed for use on the internal rectus in a small child. Illus. D. F. H.

Dantrelle. A New Procedure for Fixation of the Globe. Annales d'Ocul., 1927, March, v. 164, p. 201.

A needle threaded with white silk thread is passed intracorneally at five o'clock near the limbus for two to three millimeters. Thus a loop of thread is firmly anchored in the cornea and this is grasped at its point of emergence by fixation forceps during the operation. The location and security of the point of fixation gives one maximum control of the globe. The thread is easily removed when no longer needed and the wound is of no consequence. M. F. W.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Melville Black, 424 Metropolitan Building, Denver, Colorado. They should be sent in by the 25th of the month. The following gentlemen have consented to supply news from their respective sections: Dr. H. Alexander Brown, San Francisco; Dr. Wm. Thornwall Davis, Washington; Dr. Gaylord C. Hall, Louisville, Ky.; Dr. J. W. Kimberlin, Kansas City, Mo.; Dr. George H. Kress, Los Angeles; Dr. Edward D. LeCompte, Salt Lake City; Dr. W. H. Lowell, Boston; Dr. G. Oram Ring, Philadelphia; Dr. Charles P. Small, Chicago; Dr. G. McD. VanPoole, Honolulu.

DEATHS.

Dr. Henry W. Bradford, of Wolfeboro, New Hampshire, aged seventy-five, died recently of diabetes-pneumonia.

Dr. Frederick S. Baron, Zanesville, Ohio, aged fifty-three, died April twenty-fourth.

Dr. Aaron Schloss, of San Francisco, died in his Berkeley home on April thirtieth, aged sixty-five years.

Karl Stargardt, professor of ophthalmology, University of Marburg, died recently, aged fifty-one.

The death is announced of Mr. Waren Tay, F. R. C. S., England, May 15, at Croydon, aged eighty-four years.

SOCIETIES.

At a recent election of officers, Drs. J. C. Clemesha was made President, Harry M. Weed Vice-President, and A. F. Luhr, Secretary-Treasurer of the Buffalo Ophthalmologic Club. During the past winter papers were read by Dr. Alexander E. MacDonald, of Toronto, Canada, "Methyl Alcohol Poisoning;" Dr. McLean, New York City, "Barraquer Method for Cataract Extraction;" Dr. Tracy Putnam, Boston, Massachusetts, "Protection in the Visual System;" Dr. John Dunnington, New York City, "Muscle Clinic;" and Dr. Frederick Tooke, Montreal, Canada, "Glaucoma." Besides the five meetings at which the above papers were given, three meetings of the club were held at which patients were presented and discussed.

The final dinner meeting, until next fall, of the Opthalmological and Oto-Larynogological Section of the Cleveland Academy of Medicine, was held at Hotel Winton Friday evening April twenty-second. The meeting was an enthusiastic and well attended one, there being fifty members and out of town guests present. The speaker of the evening was Dr. James Watson White, professor of ophthalmology at the New York Post Graduate School, and surgeon to Knapp Memorial Hospital, New York City. In a masterly, comprehensive and interesting manner Dr. White discussed "The Classification and Management of Motor Anomalies." He reviewed briefly the anatomy and fields of action of the ocular muscles and then outlined simple methods which he employed in arriving at an accurate diagnosis in abnormal muscle conditions. Charts were displayed showing the behavior of double images in paralyses of ocular muscles. The importance of head tilt was brought out especially in insufficiencies or paralyses of the elevators and depressors. These types of cases were demonstrated by stereopticon views of patients seen by the speaker. In closing his address Professor White pleaded for an earlier recognition of "Motor Anomalies," and less conservatism in operating cases which show no improvement after refraction and wearing the correcting lenses.

PERSONALS.

Dr. Francisco Maria Fernandez is now a member of the Cuban Cabinet. His title is "Secretary of Sanitation and Public Charities."

Dr. George Elmer Strout, Minneapolis, recently addressed the Eau Claire and Associated Counties Medical Society on "Conservation of Vision."

Dr. Hunter H. McGuire, Richmond, Va., addressed the Eastern Panhandle Medical Society, Martinsburg, recently on "Incipient Cataract."

Professor Karl Lindner gave his introductory lecture in the 2 Augenklinik, Vienna, Tuesday, May 10th. He took for his subject "Instruction and Research in Ophthalmology."

Doctors G. M. Van Poole, F. J. Pinkerton and E. M. Howarth have formed a group in Honolulu to be known as the Mid-Pacific Eye, Ear, Nose and Throat Clinic. Ophthalmologists going to or passing thru Honolulu are urgently requested to call 'phone 6105 and let it be known that they are in the city.

Harry Vanderbilt Wurdemann, Colonel Medical (G. S.) Reserve, of Seattle, has been ordered to active duty for service in the Intelligence Section of the General Staff in Washington, D. C., during the month of June. On his way he stopped over in Denver and was entertained by Dr. Jackson at a luncheon at which several of his friends were present.

A lecture was given in English, under the auspices of the Departments of Ophthalmology of the University of Pennsylvania, by Dr. Henning Roenne of Copenhagen on Monday, May 9th. His subject was "On Optic Neuritis" and was illustrated by lantern slides of visual fields and of the pathologic anatomy of inflammations of the optic nerve.

Dr. T. M. Li, Associate Professor of Ophthalmology at the Peking Union Medical College, has been appointed Visiting Professor to the Medical School of St. John's University, Shanghai, for a period of one year, from July 1, 1927. Dr. Li has resigned from his position in Peking in order to take up his work in Shanghai and also to give part of his time to private practice.

The Committee on Scientific Research of the American Medical Association has given a grant of five hundreds dollars to Dr. Arthur M. Yudkin, Assistant Clinical Professor of Ophthalmology, to be used in the Section of Ophthalmology at Yale University, for research on the eye. This grant will enable him to continue his investigations of the chemical and physical composition of the intraocular fluids in experimental animals and also the changes which may take place as a result of cataract formation produced experimentally.

On April 8, 1927, the members of the Department of Ophthalmology of the Peking Union Medical College gave a farewell dinner, at one of the best Chinese restaurants in Peking, in honor of Dr. Harvey J. Howard, Professor and Head of the Department of Ophthalmology, on the occasion of his leaving permanently for the United States.

On behalf of the departmental staff, Dr. T. M. Li acted as toast-master for the occasion, and presented an album to Dr. Howard, in which many photographs, illustrating the various activities of the department and the college, as well as various picturesque and historic scenes in and around Peking, had been mounted. In presenting the gift, Dr. Li outlined the advances made in opthalmology in China in which Dr. Howard, during the past sixteen years, had played such a large part. Dr. Li concluded his address with these remarks:

"Dr. Howard, as the spokesman of the members of the ophthalmologic staff, I have the honor to present to you an album which records in a graphic manner some of the chief activites of the department during the years that you have been with us as our chief. The sentiment of the staff may well be voiced by my reading the inscription on this album:

To
Harvey J. Howard, M.D., Oph.D., F. A. C. S.,
Professor and Head of the Department of
Ophthalmology, 1918-1927
Peking Union Medical College,
Peking, China.

Friend, Counsellor, Inspiring Chief of the Department, Devoted to the Personal and Professional Interests of His Colleagues,

Unsparing of His Own Time and Effort in Stimulating Interest in the Science of Ophthalmology in China,

This Album is Presented
by
Tsing-Meu Li

Hua-Teh Pi Tan-Piew Lee
Wen-Ping Ling Pao-Ping Liang
Peter S. Soudakoff.

"We are sorry that you are leaving China permanently, but wherever you go we know that success will be yours. We wish you and your family a pleasant voyage home, and assure you that there always will be a warm spot for each one of you in the hearts of those whom you have left behind."

MISCELLANEOUS

The Harlem Eye and Ear Hospital was bequeathed $1,500 by the will of Annie McCarty.

The Wills Eye Hospital, Philadelphia, was left $1,000 by the late Mary Cunningham.

The New York Association for the Blind was recently bequeathed $25,000 by the will of the late Lewis B. Woodruff. Also $2,000 by the will of Annie McCarty.

Current Literature

These are the titles of papers bearing on ophthalmology. They are given in English, some modified to indicate more clearly their subjects. They are grouped under appropriate heads, and in each group arranged alphabetically, usually by the author's name in *heavy-faced type*. The abbreviations mean: (Ill.) illustrated; (Pl.) plates; (Col. Pl.) colored plates. Abst. shows it is an abstract of the original article. (Bibl.) means bibliography and (Dis.) discussion published with a paper.

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